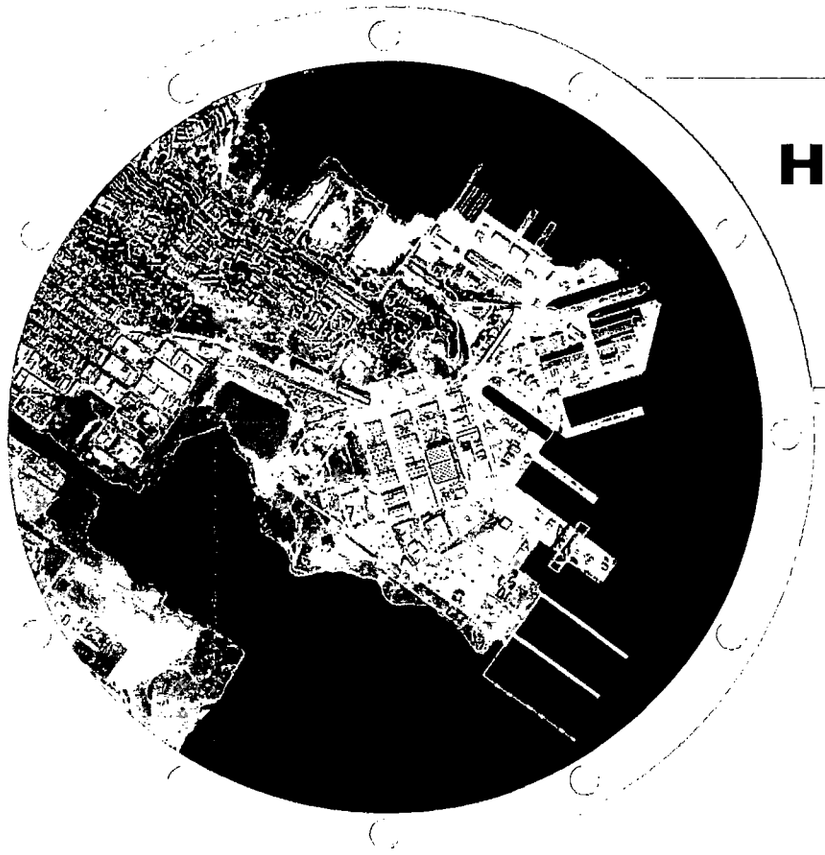

HUNTERS POINT SHIPYARD

San Francisco, California

November 2007

Semi-Annual Groundwater Monitoring Report

(April - September 2007)

Document Control No. CEKA-3001-0000-0004

Prepared by:

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Naval Facilities Engineering Command

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JAN 2 3 2008

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Dear BCT Members:

Enclosure (1), Semi-Annual Groundwater Monitoring Report, April – September 2007, Hunters Point Shipyard, San Francisco, California, is provided for your information.

Should you have any concerns regarding the enclosed report, please contact Mr. Mark Walden at (619) 532-0931.

Sincerely,

KEITH FORMAN
BRAC Environmental Coordinator
By direction of the Director

Enclosure: 1. Semi-Annual Groundwater Monitoring Report, April - September 2007, Hunters Point Shipyard, San Francisco, California (November 2007)

5090
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JAN 2 3 2008

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Semi-Annual Groundwater Monitoring Report
(April-September 2007)

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San Francisco, California

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Prepared for:

NAVFAC
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SOUTHWEST DIVISION

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Certification

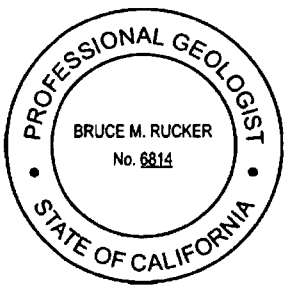
Semi-Annual Groundwater Monitoring Report (April-September 2007)

Hunters Point Shipyard
San Francisco, California

Document Control number: CEKA-3001-0000-0004
Contract N62473-07-C-3001

November 2007

I certify that the work presented in this report was performed under my supervision. To the best of my knowledge, the data contained herein are true and accurate and the work was performed in accordance with professional standards.



Bruce M. Rucker

Bruce M. Rucker, PG
Senior Geologist
CE2-Kleinfelder Joint Venture

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Abbreviations and Acronyms

APPL	Agriculture & Priority Pollutants Laboratories, Inc.
BGMP	Basewide Groundwater Monitoring Program
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
DCB	dichlorobenzene
DCE	dichloroethene
DNAPL	dense non-aqueous phase liquid
DTSC	(California) Department of Toxic Substances Control
EE	Exploratory Excavation
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point Groundwater Ambient Level
HPS	Hunters Point Shipyard
IR	Installation Restoration
JV	Joint Venture
LDC	Laboratory Data Consultants
LNAPL	light non-aqueous phase liquid
µg/L	microgram per liter (parts per billion)
MCL	Maximum Contaminant Level
MS/MSD	matrix spike/matrix spike duplicate
MSL	mean sea level
NAPL	non-aqueous phase liquid
Navy	U.S. Department of the Navy
NAWQC	National Ambient Water Quality Criteria
NNP	non-Navy property
NOAA	National Oceanic and Atmospheric Administration
PARCCS	precision, accuracy, representativeness, completeness, comparability, and sensitivity
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
POC	point of compliance
QA/QC	quality assurance and quality control
QAPP	quality Assurance Project Plan
RAMP	Remedial Action Monitoring Plan
ROD	Record of Decision
RPD	relative percent difference
RU	Remedial Unit
RWQCB	(California) Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
TCE	trichloroethene
TtEMI	Tetra Tech EM, Inc.
TPH	total petroleum hydrocarbons
UST	underground storage tank
VOC	volatile organic compound
ZVI	zero-valent iron

1.0 Introduction

On behalf of the U.S. Department of the Navy, Naval Facilities Engineering Command, Southwest Division (Navy), the CE2-Kleinfelder Joint Venture (JV) has prepared this Semi-Annual Groundwater Monitoring Report for Hunters Point Shipyard (HPS) located in San Francisco, California. The location of HPS is shown on Figure 1-1.

This report documents data collected from April through September 2007 (Second Quarter 2007 [2Q2007] and Third Quarter 2007 [3Q2007]). This report includes basewide data, including land Parcels B, C, D, E, E-2, and non Navy property (NNP).

1.1 Regulatory Framework

Groundwater issues at HPS are primarily regulated by the United States Environmental Protection Agency (EPA), the California Regional Water Quality Control Board (RWQCB), and the California Department of Toxic Substances Control (DTSC). In 1989, the EPA placed HPS on the National Priorities List in response to shipyard activities that had resulted in soil and groundwater contamination.

A Record of Decision (ROD) for Parcel B is in place (Navy 1997). New criteria for evaluating Parcel B groundwater contamination are being proposed and will be included in an amended ROD.

Unlike Parcel B, a ROD has not been implemented for Parcels C, D, E, and E-2. The Basewide Groundwater Monitoring Program (BGMP) incorporated protocols specified under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). In addition, monitoring at the Parcel E-2 Industrial Landfill Area (ILA) complies with Title 27 of the California Code of Regulations (27 CCR – municipal landfill).

1.2 Scope

Basewide groundwater monitoring is conducted in accordance with:

- *Final Sampling and Analysis Plan (SAP) for the Basewide Groundwater Monitoring Program (BGMP)* (TtEMI 2004).
- *Final Addendum 1 to the Sampling and Analysis Plan* (CE2-Kleinfelder Joint Venture 2007a).

In Parcel B, groundwater monitoring is also conducted in accordance with:

- *Final Parcel B Remedial Action Monitoring Plan (RAMP)* (Tetra Tech EM, Inc. [TtEMI] 1999). Sampling under the RAMP began in September 1999.

The scope of the groundwater monitoring program includes:

- Measuring groundwater levels.
- Collecting and analyzing groundwater samples.
- Measuring for the presence of non-aqueous phase liquids (NAPL).
- Verifying and validating the analytical data.
- Interpreting the data.
- Submitting monitoring reports.

Monitoring wells for which water level measurements and/or groundwater sampling are required to be performed by the SAP and/or RAMP are referred to in this report as compliance monitoring wells. Plate 1 shows the location of all HPS monitoring wells and indicates which wells are designated for water level measurement, sampling, or both measurement and sampling. Table 1-1 presents well construction details.

There are several wells discussed in this report that are not physically located within the base boundaries (designated as "NNP" wells). These include:

- wells located in former Parcel A (land formerly owned by the Navy and transferred to private ownership).
- wells located just outside the Parcel B western property boundary of HPS.
- wells located just outside the western and northern boundaries of Parcels E and E-2.

1.3 Changes to Basewide Compliance Monitoring Program

The following changes were made to the basewide compliance monitoring program in the current reporting period, per SAP Addendum no. 1 (CE2-Kleinfelder Joint Venture 2007a) unless specified otherwise. Tables 4-1 and 4-2 reflect the current basewide compliance monitoring program for 2Q2007 and 3Q2007, respectively.

1.3.1 Well Installation and Decommissioning

The following summarizes activities related to well installation and decommissioning in the current reporting period, and the associated change to the compliance program.

Wells Installed

The following wells were installed in the current reporting period and have been added to the compliance monitoring program both depth to water [DTW] measurement and sampling), effective 2Q2007:

- Well IR01MW64A (Parcel E-2, installed April 2007 to replace well IR01MW43A).
- Well IR02MW301A (Parcel E, installed April 2007 to replace well IR02MW300A).
- Well IR06MW60A (Parcel B, installed April 2007 to replace well IR06MW45A).

- Well IR10MW81A (Parcel B, installed April 2007 to replace well PA50MW01A).
- Well IR10MW82A (Parcel B, installed April 2007 to replace well IR10MW12A).

Wells Decommissioned

The following wells were decommissioned in the current reporting period, all due to excavations associated with the sanitary sewer line removal project unless specified otherwise, and are therefore removed from the compliance program effective the quarter that the well was decommissioned. An upcoming SAP Addendum also will formally remove from the compliance program those wells not previously addressed in SAP Addendum 1. The 2004 SAP and/or SAP Addendum 1 requirements for these wells were both DTW measurement and sampling, unless specified otherwise below.

- Well IR25MW41A (Parcel C, decommissioned April 2007) (2004 SAP requirement was sampling only).
- Well IR25MW42B (Parcel C, decommissioned July 2007) (2004 SAP requirement was DTW measurement only).
- Well IR33MW61A (Parcel D, decommissioned July 2007) (2004 SAP requirement was DTW measurement only).
- Well IR33MW62A (Parcel D, decommissioned July 2007) (2004 SAP requirement was DTW measurement only).
- Well PA50MW01A (Parcel B, decommissioned April 2007).
- Well PA18MW08A (NNP, decommissioning date and reason unknown) (2004 SAP requirement was DTW measurement only).
- Well PA50MW11A (Parcel D, decommissioned August 2007).
- Well PA50MW12A (Parcel D, decommissioned October 2007).
- Well UT03MW12A (Parcel B, decommissioned July 2007) (2004 SAP requirement was DTW measurement only).

1.3.2 Wells Added to Sampling Program

The following existing wells were added to the sampling program (including both DTW measurement and sampling), effective 2Q2007. These revisions were agreed upon in the 28 March 2007 Groundwater Working Group meeting.

- Well IR01MW60A (Parcel E-2). This well replaces decommissioned well IR01MWI-3.

The following wells were added to the sampling program to monitor the southern edge of the IR-09 contaminant plume. Additionally, there were concerns that the anticipated deactivation of the sanitary sewer lift station near Building 819 in May 2007 would result in a change in groundwater flow direction; the added wells provide additional data to address that concern.

- Well IR09MW44A (Parcel D).
- Well IR09MW52A (Parcel D).
- Well IR34MW36A (Parcel D).
- Well PA36MW02A (Parcel E).
- Well PA50MW11A (Parcel D). This well was added to the compliance program in 2Q2007 per SAP Addendum 1, then was decommissioned and removed from the compliance program in 3Q2007 due to utility removal trenching activities.

The following wells were added to the sampling program to monitor the IR-36 chlorinated VOC plume.

- Well IR36MW09A (Parcel E).
- Well IR36MW14A (Parcel E).
- Well PA36MW04A (Parcel E).

The following wells were added, as a result of previous BCT meetings, to monitor potential mercury impacts to groundwater associated with Exploratory Excavation (EE)-05.

- Well IR26MW49A (Parcel B).
- Well IR26MW50A (Parcel B).

1.3.3 Wells Removed from Compliance Program

The following wells were removed from the compliance program because of physical condition, insufficient water, and/or were redundant for contouring water levels.

- Well IR09MW54B (Parcel D) (deleted sampling requirement only, effective 2Q2007).
- Well IR36MW126A (Parcel E) (deleted sampling requirement only, effective 2Q2007).

1.3.4 SAP-Proposed and Not Installed Wells

The following wells were listed in the 2004 SAP for DTW measurement, but were never installed, and are therefore removed as compliance wells:

- Well IR04MW336A (Parcel E).
- Well IR07MW29A (Parcel B).
- Well IR07MW30A (Parcel B).
- Well IR07MW31A (Parcel B).
- Well IR25MW35A (Parcel C).
- Well IR25MW38A (Parcel C).
- Well IR25MW62F (Parcel C).
- Well IR25MW63A2 (Parcel C).
- Well IR25MW64A2 (Parcel C).

1.3.5 Changes to Sampling Frequency

The sampling frequency was changed from quarterly to annual at the following wells, effective 2Q2007; these wells will be sampled annually in the first quarter of each calendar year. These wells had consistently shown no detectable contamination.

- Well IR36MW120B (Parcel E).
- Well IR36MW121A (Parcel E).
- Well PA36MW01A (Parcel E).

1.3.6 Changes to Analytical Methods

The following changes were made to analytical methods, effective 2Q2007.

Analytical methods were changed at the following two wells to monitor the southern edge of the IR-09 chromium plume:

- Well IR09MW36A (Parcel D): added hexavalent chromium; deleted all EPA 6010B metals except total chromium and vanadium.
- Well IR09P040A (Parcel D): added total chromium, hexavalent chromium, and total suspended solids.

Analysis for VOCs was added to the following well to address regulatory concerns about a possible dip tank at Building 406:

- Well IR36MW17A (Parcel E).

Analysis for pesticides was discontinued in the following well because no pesticides had been reported in multiple sampling events, and no release site was suspected:

- Well PA36MW01A (Parcel E).

1.3.7 Well Re-Surveying

Horizontal and vertical coordinates were re-surveyed at the following wells in June 2007, because the surveyed measurement point of reference (top of well casing) data were inconsistent or had changed. Table 1-1 reflects the re-surveyed elevations.

- Well IR01MW16A (Parcel E-2).
- Well IR01MW18A (Parcel E-2).
- Well IR01MW26B (Parcel E-2).
- Well IR01MW366A (Parcel E-2).
- Well IR01MW366B (Parcel E-2).
- Well IR01MW38A (Parcel E-2).
- Well IR01MW403B (Parcel E-2).
- Well IR01MWI-5 (Parcel E-2).
- Well IR01MWLF1A (Parcel E-2).
- Well IR01MWLF2A (Parcel E-2).
- Well IR01MWLF4B (Parcel E-2).
- Well IR02MW175A (Parcel E).
- Well IR02MW179A (Parcel E).
- Well IR06MW59A1 (Parcel C).

- Well IR06MW59A2 (Parcel C).
- Well IR28MW394A (Parcel C).
- Well IR28MW398A (Parcel C).
- Well IR50MW15A (Parcel D).
- Well IR70MW04A (Parcel D).
- Well IR70MW07A (Parcel D).
- Well IR70MW11A (Parcel D).

1.3.8 Well Re-Development

The following 27 wells were re-developed in the current reporting period because they have exhibited low recharge, have shown elevated turbidity, and/or have accumulated sediment at the bottom of the well casing. The efficacy of the re-development will be evaluated in the subsequent semi-annual groundwater monitoring report.

- Well IR01MW48A (Parcel E-2).
- Well IR01MW53B (Parcel E-2).
- Well IR01MW62A (Parcel E-2).
- Well IR01MW63A (Parcel E-2).
- Well IR01MW64A (Parcel E-2).
- Well IR01MWI-7 (Parcel E-2).
- Well IR01MWI-8 (Parcel E-2).
- Well IR02MW149A (Parcel E).
- Well IR02MW169A (Parcel E).
- Well IR02MW179A (Parcel E).
- Well IR02MW300A (Parcel E).
- Well IR06MW60A (Parcel C).
- Well IR07MW26A (Parcel B).
- Well IR07MWS-2 (Parcel B).

- Well IR10MW62A (Parcel B).
- Well IR10MW81A (Parcel B).
- Well IR10MW82A (Parcel B).
- Well IR18MW21A (Parcel B).
- Well IR25MW37A (Parcel C).
- Well IR26MW47A (Parcel B).
- Well IR26MW48A (Parcel B).
- Well IR26MW49A (Parcel B).
- Well IR26MW50A (Parcel B).
- Well IR28MW140F (Parcel C).
- Well IR28MW255F (Parcel C).
- Well IR28MW270F (Parcel C).
- Well IR64MW05A (Parcel C).

1.3.9 Preventative Well Maintenance

A preventative well maintenance program was initiated in December 2006. Activities in this program include: replacing well vaults and concrete pads; converting flush-mount vaults to/from above-grade monuments; and installing protective traffic bollards. Since December 2006, preventive maintenance activities have been conducted at 86 compliance monitoring wells.

Table 1-1 reflects the current well construction details for HPS monitoring wells. Well installation logs and decommissioning logs will be periodically provided to the BCT, along with a revised Well Construction Details Table and a tabular summary of the progress of the well replacement and repair effort.

2.0 Site Conditions and Background

This section presents a summary of the site setting, history, contaminant sources, and a conceptual summary of hydrogeologic conditions.

2.1 Site Description and History

HPS is located on the southeastern edge of San Francisco and along the western shore of San Francisco Bay. HPS currently covers approximately 400 acres of lowland coast and shoreline. HPS is divided into five terrestrial Parcels (B, C, D, E, and E-2) and submerged Parcel F. The locations of the terrestrial Parcels are shown on Figure 1-1.

HPS is bounded to the north, east, and south by San Francisco Bay. Off-site NNP is located to the west and south of Parcel B, to the west of Parcel C, to the north of Parcel D, and to the north and west of Parcels E and E-2.

Approximately 80 percent of the land area at HPS is composed of artificial fill, mostly quarried rock and dredged soil placed on top of marshland. Most of this filling occurred in the 1940s. The 1935 shoreline is shown on Plate 1.

From 1869 until 1939, the shipyard was operated as a commercial dry dock facility. The Navy leased the property prior to 1940, when the Navy obtained ownership of the shipyard for ship building, repair, and maintenance activities. At the conclusion of World War II, activities shifted from ship repair to submarine servicing and testing. HPS was deactivated in 1974 and remained relatively unused until 1976. Between 1976 and 1986, the Navy leased most of the property to a privately owned ship repair firm. In 1986, the Navy again occupied the shipyard and began a program to investigate and clean up contamination resulting from past activities.

The primary land use has been office and commercial/industrial buildings. Most of Parcels B, C and D are paved, while Parcels E and E-2 are mostly unpaved. Except along the boundary with the NNP, HPS is relatively flat with ground surface elevations averaging approximately 5 to 10 feet above mean sea level (MSL).

2.2 Contaminant Sources

Previous investigations at HPS have identified 78 Installation Restoration (IR) or Site Inspection (SI) sites at HPS, of which 66 are assigned to Parcels C, D, E, and E-2 as described in *Informal Briefing: Environmental Clean-Up Sites* (Navy 2003), and the remaining 12 are assigned to Parcel B as described in the RAMP.

Seven groundwater remedial units (RUs) have been defined at HPS. Four RUs (RU-C1, RU-C2, RU-C4, and RU-C5) are located in Parcel C. Two RUs (the Northwest Bay Fill Area, and the Former Oil Reclamation Ponds) are located in Parcel E. The final RU (Industrial Landfill Area) is approximately coincident with the boundaries of Parcel E-2. As discussed in Section 4.0, various pilot-scale treatability studies have been conducted in these areas, including soil vapor extraction (SVE), zero-valent iron (ZVI) injection, and sequential anaerobic-aerobic bioremediation.

The contaminants of concern for HPS groundwater include volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), pesticides, cyanide, and metals (primarily mercury and hexavalent chromium). Dense Non-Aqueous Phase Liquid (DNAPL) and/or Light Non-Aqueous Phase Liquid (LNAPL) have historically been present in several monitoring wells. The LNAPL typically consists of petroleum hydrocarbons such as fuel and waste oil, the DNAPL typically consisted of chlorinated solvents such as tetrachloroethene (PCE) and trichloroethene (TCE). DNAPL has not been observed in measured HPS wells (as part of the BGMP) since 2002.

2.3 Hydrogeology

Conceptual summaries of the stratigraphy, hydrostratigraphy, recharge-discharge areas, and groundwater flow at HPS are presented in the following sections.

2.3.1 Stratigraphy

Five principal geologic units have been defined at HPS. In order of increasing depth, and approximately from youngest to oldest, these units are:

Artificial Fill (Qaf) – Most of the land area for HPS was created using quarried rock from upland areas. The artificial fill consists mostly of serpentinite with lesser amounts of dredged marshland deposits. The artificial fill also contains pockets of industrial fill consisting of building debris and sandblast grit. As a result, the artificial fill is a heterogeneous mixture of unconsolidated material with a wide range of grain sizes. The artificial fill overlies natural sediments or bedrock, depending on the location. The variable thickness of the artificial fill reflects erosional features such as stream channels in the natural sediments and an uneven bedrock surface. A relatively thin unit of slope debris and ravine fill underlies the artificial fill at scattered locations.

Undifferentiated Upper Sands (Quus) – This naturally occurring unit is comprised of poorly-graded, discontinuous estuarine, lagoonal, and alluvial sand deposits that overlie, but in places interbed with, the underlying Bay Mud. These sands may also directly overlie bedrock.

Bay Mud (Qbm) – The Bay Mud unit consists of estuarine sediments that are predominantly composed of silt and clay, but may include clayey or silty sands. The Bay Mud may underlie artificial fill or the upper sand deposits and overlie the deeper undifferentiated sediments or bedrock. The Bay Mud is occasionally interbedded with the Undifferentiated Upper Sands unit.

Undifferentiated Sediments (Qu) – This unit consists of naturally occurring unconsolidated silty or clayey sands containing discontinuous, isolated sand lenses. These sediments can underlie any of the younger units.

Franciscan Complex Bedrock (Kf) – The bedrock consists primarily of serpentinite and minor amounts of metamorphosed basalt (greenstone) or shale. Bedrock competency is variable and factures are common. The bedrock surface is irregular across the HPS. For

example, bedrock is shallow near the northern boundary of Parcels C, D, and E and along the north side of Dry Dock 3, but can be present at depths exceeding 130 feet in Parcel B and 280 feet in Parcel E.

2.3.2 Hydrostratigraphy

Four hydrostratigraphic units have been defined at HPS:

A-Aquifer - The unconfined A-Aquifer is present primarily in the artificial fill and Undifferentiated Upper Sands units, but in some places the groundwater in shallow fractured bedrock is in hydraulic connection with the A-Aquifer. In some locations the A-Aquifer has been subdivided into A-1, A-2, and A-3 zones to reflect localized water-bearing zones.

Bay Mud Aquitard - The discontinuous Bay Mud Aquitard separates the A-Aquifer from the B-Aquifer, where present.

B-Aquifer - The B-Aquifer is not continuous and directly underlies the A-Aquifer where the Bay Mud Aquitard is absent. The B-Aquifer is typically under semiconfined or confined conditions.

Bedrock Water-Bearing Zone - The Bedrock Water-bearing Zone consists of isolated pockets of fractured bedrock that are not hydraulically connected to upper hydrostratigraphic units.

2.3.3 Recharge and Discharge

Most groundwater recharge at HPS occurs by infiltration of precipitation falling on the off-site upland areas and by precipitation falling on unpaved areas onsite, especially in Parcels E and E-2. Recharge sources to the A-Aquifer can also include buried utilities. Groundwater discharges from the A-Aquifer to:

- Sanitary sewer lines.
- Storm drain lines.
- San Francisco Bay at some segments along the shoreline, although specific areas of discharge have not been identified.

Vertical gradients suggest that groundwater can flow upward or downward between the A-Aquifer and the B-Aquifer, where the Bay Mud Aquitard between the two aquifers is absent.

2.3.4 Groundwater Flow Direction

Groundwater flow direction in the A-Aquifer is generally towards San Francisco Bay, but natural heterogeneities and anthropogenic features have created preferential groundwater pathways. The natural heterogeneities consist of stratigraphic discontinuities and facies changes. The anthropogenic features consist of heterogeneous pockets of artificial fill and an extensive system of buried utilities.

Groundwater elevations in the A-Aquifer are influenced by tidal fluctuations that create a sinusoidal pressure wave near the shoreline. Tidal influence in the A-Aquifer decreases with increasing distance from the shoreline. The tidal period is approximately 6 hours. At HPS, the mean tide range (difference in height between mean high water and mean low water) is approximately 5 ft. A Tidally Influenced Zone has been defined for the A-Aquifer where tides cause groundwater elevations to fluctuate by 0.1 ft or more. As shown on Plate 1, the width of the Tidally Influenced Zone varies from approximately 75 to 500 ft along the shoreline.

The Tidal Mixing Zone is defined as the area where A-Aquifer groundwater mixes with water from San Francisco Bay. The Tidal Mixing Zone is likely much narrower than the Tidally Influenced Zone, but has not been fully delineated.

Local anomalies in groundwater elevation can be caused by the interaction of subsurface utilities (sanitary sewer, storm sewer, and water supply lines) with the regional groundwater regime. Storm/sanitary sewer lines and backfill in the utility trenches can serve as a preferential pathway for groundwater flow and can either discharge or receive water. Local anomalies in groundwater elevation have also been caused by groundwater injection/extraction activities associated with treatability studies.

3.0 Groundwater Flow

This section discusses the collection of groundwater elevation data and the evaluation of groundwater flow for the current semi-annual monitoring period.

3.1 Groundwater Elevation Data

Groundwater measurements are typically planned to occur during a 4-hour period around the higher-low neap tide, to reduce tidal influence on the measurements. However, collecting groundwater level measurements within this time period is not possible if the higher-low neap tide occurs on a weekend, holiday, or at night. Tidal data for the current events were obtained from the National Oceanic and Atmospheric Administration [NOAA] (NOAA, 2007).

Groundwater elevations were calculated by subtracting the depth to water measurements from the respective top of casing elevations. Groundwater elevation measurement information and data are included in the following appendices:

Appendix A. Groundwater elevation measurement forms.

Appendix B. Basewide groundwater elevation data.

For the current semi-annual reporting period, depths to groundwater were measured in two quarterly events: May 9, 2007 (2Q2007) and August 7, 2007 (3Q2007).

3.1.1 2Q2007 Groundwater Elevation Data

Basewide groundwater elevations were measured in 370 monitoring wells in the 2Q2007 measurement event. For this event, there were no working days that coincided with the neap tide. Therefore the working day closest to the neap tide was selected. Likewise, no daylight hours in this period coincided with the higher-low tide on that day. Therefore groundwater depth measurements were made during the lower-low tide on that day.

3.1.2 3Q2007 Groundwater Elevation Data

Basewide groundwater elevations were measured in 366 monitoring wells in the 3Q2007 measurement event. For this event, there were no working days that coincided with the neap tide. Therefore the working day closest to the neap tide was selected. Groundwater depth measurements were made during the higher-low tide on that day.

3.2 Groundwater Flow

3.2.1 A-Aquifer

Plate 2 presents the basewide potentiometric surface contour map for the A-Aquifer and was constructed using data from the 3Q2007 measurement day. In general, groundwater flows from NNP upland recharge areas towards San Francisco Bay.

Groundwater flow directions and lateral gradients in the A-aquifer are similar between 2Q2007 and 3Q2007. From quarter to quarter, groundwater elevations in the A-Aquifer typically fluctuate within a narrow range. For 2Q2007, groundwater elevations across the shipyard ranged from approximately 6 ft MSL to minus 2 ft MSL. For 3Q2007, which coincided with the beginning of the dry season, groundwater elevations across the shipyard ranged from approximately 5 ft MSL to minus 1 ft MSL.

Across much of Parcel B, the A-aquifer potentiometric surface contours roughly parallel the shoreline and seawall. Slight groundwater mounding is evident on the isolated eastern end of Point Avisadero. Relatively minor irregularities in the contours across the remainder of Parcel B may be attributable to buried utilities and trenching operations. The sanitary sewer system in Parcel B was deactivated in September 2005 to facilitate removal and radiological screening of the piping. Storm sewer outfalls to San Francisco Bay were plugged, and storm sewer lines were removed where these lines were encountered in the same trenches as the sanitary sewer lines. In Parcel C, the potentiometric surface contours approximately parallel the shoreline and dry docks. Groundwater mounding is evident near Building 134 and in the central portion of Parcel C near Building 270.

The A-aquifer potentiometric surface is relatively flat across much of Parcel D. A groundwater depression with groundwater elevations below sea level has historically been observed in the central portion of Parcel E. The depression is most likely the residual effect of groundwater draining into damaged sanitary sewer lines. A sanitary sewer lift station located near Building 819 was operated until May 2007. An extensive system of buried sanitary sewer lines in Parcels D and E drained to the lift station where the water was subsequently pumped offsite to the local sewage treatment plant. Where the sanitary sewer lines are submerged below the water table, the lines can serve as conduits to drain the surrounding sediments and artificial fill. While the lateral extent of the groundwater depression differed between 1Q2007 and 2Q2007, the surface area encompassing the groundwater depression was approximately the same. Between 2Q007 and 3Q2007 the surface area encompassing the groundwater depression decreased approximately 400% to 500%, indicating a rise in water levels and conditions approaching natural hydrology (i.e. not influenced by sanitary sewer lines). In 3Q2007 the approximate center of the groundwater depression was near well IR39MW23A.

In Parcel E, a groundwater divide parallels the shoreline and extends from near Building 600 to the Industrial Landfill. Along much of Parcel E-2, the potentiometric surface contours parallel the shoreline.

3.2.2 B-Aquifer

Plate 3 presents a basewide potentiometric surface contour map for the B-aquifer and was constructed using data from the 3Q2007 measurement day. Orientation of the B-aquifer potentiometric surface contours across the shipyard are relatively consistent from quarter to quarter, but unlike the A-aquifer, mostly do not mimic the shoreline, sea wall, or dry docks.

Lateral gradients in the B-aquifer are relatively lower than the A-aquifer and are generally similar for 2Q2007 and 3Q2007. From quarter to quarter, groundwater elevations in the B-Aquifer typically fluctuate within a narrow range. For both 2Q2007 and 3Q2007,

groundwater elevations in the B-Aquifer across the shipyard ranged from approximately 7 ft MSL to 0 ft MSL.

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4.0 Nature and Extent of Groundwater Contamination

4.1 Groundwater Sampling and Analysis

Two groundwater sampling events were conducted in the current semi-annual reporting period: from April 30 through May 22, 2007 (2Q2007), and from August 8 to August 28, 2007 (3Q2007). Groundwater samples were collected from monitoring wells in accordance with the BGMP SAP and RAMP, except as listed in Tables 4-11 and 4-12 (SAP deviations for 2Q2007 and 3Q2007, respectively.

Sampling, analysis and Trigger Level information for the current semi-annual reporting period is included in the following tables and appendices:

Table 4-1. Analytes and frequency for groundwater samples (2Q2007).

Table 4-2. Analytes and frequency for field QC samples (2Q2007).

Table 4-3. Analytes and frequency for groundwater samples (3Q2007).

Table 4-4. Analytes and frequency for field QC samples (3Q2007).

Table 4-5. Parcel B Trigger Level criteria for each RAMP monitoring well type.

Table 4-6. Parcel B Trigger Level criteria for non-RAMP monitoring wells.

Table 4-7. Numerical Parcel B trigger levels.

Appendix C. Monitoring well sampling forms.

Appendix D. Chain-of-custody forms.

Appendix E. Batch wastewater discharge permit applications.

The Parcel B RAMP identified six types of monitoring wells:

1. Point of compliance (POC) wells located near the inland edge of the Tidally Influenced Zone.
2. Sentinel wells near the inland edge of the 5-year buffer zone.
3. Post-remedial action wells located within the Tidally Influenced Zone to monitor the effectiveness of source control measures.
4. VOC wells to monitor the potential degradation of TCE to vinyl chloride.
5. On-/off-site wells located near the western boundary of Parcel B.
6. Utility line wells.

Two other types of monitoring wells have been established post-RAMP:

1. Hexavalent chromium wells.
2. Supplemental characterization wells that were installed in the vicinity of Exploratory Excavation (EE) -05 in January 2002 to evaluate the risk from groundwater on the eastern shoreline of IR-26 to aquatic receptors in the San Francisco Bay.

Supplemental characterization wells were also installed in 2003 at IR-10 to monitor the progress of the zero-valent iron (ZVI) injection treatability study.

Groundwater analyses (non-radionuclides) were performed by Agriculture & Priority Pollutants Laboratories, Inc. (APPL) in Fresno, California. Analyses for radionuclides were conducted by Eberline Services, Inc. in Richmond, California. Samples were transported to APPL from HPS by a courier. APPL then shipped samples for radionuclide analyses to Eberline Services, Inc.

4.2 Analytical Results

Plate 4 presents the lateral distribution of TCE, cis-1,2-dichloroethene (DCE), vinyl chloride, and hexavalent chromium in groundwater from the 3Q2007 sampling and analysis event (the most recent quarterly event in this semi-annual reporting period). Data from all wells sampled for these analytes are shown on these figures, regardless of hydrostratigraphic completion interval. This provides a comprehensive depiction of the extent of contamination for these analytes.

A number of analytes were reported at concentrations exceeding the Federal or California Maximum Contaminant Levels (MCLs), Hunters Point Groundwater Ambient Levels (HGALs) or National Ambient Water Quality Criteria (NAWQC) (collectively referred to herein as "water quality criteria"). Values for HGALs and NAWQCs were obtained from the HPS Parcel B Remedial Action Monitoring Plan (RAMP) (TtEMI 1999). Values for MCLs were obtained from the USEPA and Cal/EPA websites. Tables 4-8 and 4-9 list the wells where water quality criteria were exceeded in the two sampling and analysis events comprising this semi-annual reporting period, and include the analytes exceeding water quality criteria and the respective analyte concentrations.

Analytical data for the current reporting period are presented in the following appendices:

Appendix F. Laboratory analytical reports and data validation reports.

Appendix G. Analytical results.

The following are parcel-specific discussions of contamination sources, previous treatability studies and corrective actions, and analytical results from the two events comprising the current semi-annual reporting period.

4.2.1 Parcel B

The Navy has conducted a series of excavations in Parcel B to remove soil contamination, as described in the *Draft Parcel B Technical Memorandum in Support of a Record of Decision Amendment* (SulTech 2006). Between July 1996 and January 1997, the Navy performed pre-ROD exploratory excavations at 18 sites across HPS, including removal of 1,700 cubic yards of soil from five sites within Parcel B. During two phases of remedial actions for soil in 1998-1999 and 2000-2001, 101,600 cubic yards of soil from 106 areas in Parcel B were excavated. Between July 2004 and January 2005, 12 excavations at sites across HPS were performed to

remove soil that was contaminated by fuel-related contaminants; 9,800 cubic yards of soil were removed and disposed of off site from two areas within Parcel B.

4.2.1.1 IR-10

Both VOCs and hexavalent chromium have been released in IR-10, in the northern portion of Building 123, resulting in two separate contaminant plumes in groundwater. Treatability studies to address VOC contamination that have been conducted in IR-10 include:

- Soil vapor extraction (SVE) treatability study conducted between 2004 and 2006 (TtEMI 2006).
- Zero-valent iron (ZVI) injection treatability study conducted in 2003-2004 (ERRG 2004).

The lateral distribution of TCE, cis-1,2-dichloroethene (DCE), vinyl chloride and hexavalent chromium is shown on Plate 4. Time-series concentration plots of TCE, cis-1,2-DCE, vinyl chloride, and hexavalent chromium in wells in the IR-10 area are presented as Figures 4-1 through 4-4.

The analytical results for IR-10 wells indicate the following:

TCE

- The maximum TCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in: well IR10MW71A (11 µg/L in the 2Q2007 event); and, well IR10MW33A (4.7 µg/L in the 3Q2007 event). Prior to the 3Q2007 event, well IR10MW71 historically showed maximum TCE concentrations in IR-10.
- The current lateral extent of TCE is consistent with recent events.
- TCE concentrations decreased approximately one order of magnitude in wells IR10MW71A and following the ZVI Treatability Study, which concluded in early 2004, and are currently at historical minima. Well IR10MW33A also showed a one order of magnitude decrease in TCE concentrations following the ZVI Treatability Study to a historical minimum in 4Q2006, however TCE concentrations have since rebounded to approximately 50% of pre-ZVI Treatability Study concentrations. Well IR10MW61A, installed at the conclusion of the ZVI Treatability Study, has shown highly variable TCE concentrations, however the most recent TCE concentration in this well is approximately 20% of its initial concentration.
- Wells that show TCE concentrations approximating pre-remediation concentrations include IR10MW13A1, IR10MW62A, and IR10MW76A.
- Water quality criteria for TCE were exceeded in 2Q2007 in three IR-10 wells (IR10MW59A, IR10MW71A and IR10MW13A1). No TCE water quality criteria

were exceeded in the 3Q2007 event.

Cis-1,2-DCE

- The maximum cis-1,2-DCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in: well IR10MW59A (87 µg/L in the 2Q2007 event, and 92 µg/L in the 3Q2007 event). This well has shown maximum cis-1,2-DCE concentrations in IR-10 wells since 4Q2006.

- The current lateral extent of cis-1,2-DCE is consistent with recent events.

- cis-1,2-DCE concentrations are variable over time, and fluctuate within a range of one to two orders of magnitude. cis-1,2-DCE concentrations have not shown concentration decreases that would be expected as a result of the Treatability Study, and in some wells cis-1,2-DCE concentrations are near or at historical maxima.

- Water quality criteria for cis-1,2-DCE were exceeded in one or both of the two most recent quarterly events in five IR-10 wells (IR10MW13A1, IR10MW33A, IR10MW59A, IR10MW61A and IR10MW71A).

Vinyl Chloride

- The maximum vinyl chloride concentrations in the two sampling events comprising the current semi-annual reporting period were reported in: well IR10MW59A (2.6 µg/L in the 2Q2007 event, and 30 µg/L in the 3Q2007 event).

- The current lateral extent of vinyl chloride is consistent with recent events.

- Vinyl chloride concentrations in individual wells are variable over time, and generally fluctuate within a range of approximately one order of magnitude or less. Vinyl chloride was not reported in well IR10MW33A between 3Q2000 and 2Q2004 (conclusion of ZVI Study), and subsequently has increased to a historical maximum in 1Q2007.

- Water quality criteria for vinyl chloride were exceeded in one or both of the two most recent quarterly events in three IR-10 wells (IR10MW33A, IR10MW59A, and IR10MW61A).

Hexavalent Chromium

- The maximum hexavalent chromium concentration reported in the 2Q2007 event was in well IR10MW82A (0.86 µg/L). Hexavalent chromium was not reported in IR-10 wells in the 3Q2007 event.

- Water quality criteria for hexavalent chromium were not exceeded in either the 2Q2007 or 3Q2007 sampling event in any Parcel B wells. The sole Parcel B well with historical hexavalent chromium concentrations above water quality criteria was IR10MW12A, which was decommissioned following the 2Q2006 sampling event.

4.2.1.2 Exploratory Excavation-05 (EE-05)

Mercury impacts to soil were encountered at Exploratory Excavation (EE) -05. Exploratory Excavation EE-05 is located in IR-26 on the south side of former Building 141 and approximately 50 ft north of Dry Dock 3. In the late 1990s, approximately 5,000 cubic yards of contaminated soil was removed to a depth of approximately 10 feet. The mercury concentration in soil samples collected from the bottom of the excavation was 0.2 to 90 mg/kg (the Hunters Point Ambient Level for mercury in soil is 2.3 mg/kg), but excavation to a depth of 10 ft was considered protective of human health. Potential impacts to groundwater quality were not evaluated at the time of the excavation, but the removal of the contaminated soil is expected to have a long-term benefit.

Figure 4-5 presents a time-series plot of mercury concentrations in samples from wells near EE-05. The mercury analytical results for EE-05 wells indicate the following:

- The maximum mercury concentrations reported in the two sampling events comprising the current semi-annual reporting period were reported in well IR26MW47A (1.2 µg/L in the 2Q2007 event, and 2.7 µg/L in the 3Q2007 event). This well has historically shown the maximum mercury concentrations in EE-05 wells.
- The lateral extent of mercury is consistent with recent events.
- Mercury concentrations in well IR26MW47A are variable over time, fluctuating between approximately 0.3 µg/L and 2.7 µg/L since 2002. A seasonal trend is evident, with higher mercury concentrations generally present in the summer months. Mercury has not been reported above the 0.6 µg/L HGAL in wells IR26MW48A or IR26MW50A. In well IR26MW49A, mercury concentrations have shown an increasing trend, from less than 1 µg/L in 3Q2006 (1st sampling event) to 2.7 µg/L in 3Q2007 (historical maximum in this well).
- Water quality criteria for mercury were exceeded in both of the two most recent quarterly events in two EE-05 wells (IR26MW47A and IR26MW49A).

4.2.1.3 Other Analytes in Parcel B

Water quality criteria were exceeded in Parcel B wells in one or both of the two most recent quarterly events for the following other analytes: beryllium, nickel, silver and thallium.

4.2.2 Parcel C

Areas of concern in Parcel C include the following Remedial Units (RUs):

- RU-C1.
- RU-C2.
- RU-C4.

- RU-C5.

4.2.2.1 RU-C1

There are four buildings (Building 211, Building 231-north, Building 231-south, and Building 253) in RU-C1; these buildings were historically used for heavy industrial machining. There were also nine underground storage tanks (USTs) removed from RU-C1 in 1991 and 1993. Chlorinated solvents are the primary contaminants at RU-C1. Soil vapor extraction (SVE) treatability studies were conducted in RU-C1 in 2000/2001 at the junction of Buildings 211 and 253 (IT Corporation 2002c), and near the center of Building 231 (IT Corporation 2002a).

Figure 4-6 presents time-series plots of TCE and cis-1,2-DCE in groundwater at RU-C1; Figure 4-7 shows vinyl chloride, 1,2-DCB, and 1,4-DCB.

The analytical results for RU-C1 wells indicate the following:

TCE

- The maximum TCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR28MW151A (24 µg/L in the 2Q2007 event, and 2.6 µg/L in the 3Q2007 event). This well has generally shown the maximum TCE concentration in RU-C1, however the 3Q2007 concentration is a historical minimum. No contaminant concentration trends are evident.
- The current lateral extent of TCE is consistent with recent events.
- TCE concentrations in individual wells are variable over time, but fluctuate within a range of one order of magnitude or less.
- Water quality criteria for TCE were exceeded in 2Q2007 events in two RU-C1 wells (wells IR28MW136A and IR28MW151A). No TCE water quality exceedances occurred in the 3Q2007 event.

Cis-1,2-DCE

- The maximum cis-1,2-DCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR28MW151A (200 µg/L in the 2Q2007 event; and 64 µg/L in the 3Q2007 event). This well has consistently shown the maximum cis-1,2-DCE concentration in RU-C1.
- The current lateral extent of cis-1,2-DCE is consistent with recent events.
- cis-1,2-DCE concentrations in individual wells are variable over time, and fluctuate within a range of one order of magnitude or less. No contaminant concentration trends are evident.
- Water quality criteria for cis-1,2-DCE were exceeded in one or both of the two most recent quarterly events in two RU-C1 wells (wells IR28MW136A and

IR28MW151A).

Vinyl Chloride

- The maximum vinyl chloride concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR28MW151A (180 µg/L in the 2Q2007 event, and 210 µg/L [estimated value] in the 3Q2007 event). This well has generally shown the maximum vinyl chloride concentration in RU-C1, and the current quarter maximum vinyl chloride concentration is consistent with previous quarters.

- The current lateral extent of vinyl chloride is consistent with recent events.

- Vinyl chloride concentrations in individual wells are variable over time, and fluctuate within a range of one order of magnitude or less. In well IR28MW151A, concentrations fluctuate between approximately 100 µg/L and 1,000 µg/L, with one exception: vinyl chloride was not reported in this well in 1Q2006 (considered an anomalous result).

- Water quality criteria for vinyl chloride were exceeded in one or both of the two most recent quarterly events in two RU-C1 wells (wells IR28MW136A and IR28MW151A).

DCB

- Neither 1,2-DCB nor 1,4-DCB were reported in RU-C1 samples in the current semi-annual reporting period.

- DCB has historically been reported in well IR28MW169A, at concentrations up to approximately 10 µg/L. The absence of DCB in the current event is consistent with recent historical (since 2Q2006) sampling events.

- DCB chloride concentrations in individual wells are highly variable over time, with historical maxima reported in 3Q2004 and 4Q2005. Current quarter DCB concentrations are near historical minima.

- Water quality criteria for DCB were not exceeded in any RU-C1 wells in either of the two most recent quarterly events.

Other Analytes

- Water quality criteria were exceeded in RU-C1 wells in one or both of the two most recent quarterly events for the following other analytes: benzene, total chromium, hexavalent chromium, PCB-1260, tetrachloroethylene, and trans-1,2-DCE.

4.2.2.2 RU-C2

The two principal sources of contamination for RU-C2 are the sump and dip tank in Building

251 and the pickling and degreasing area in Building 258. Chlorinated solvents are the primary contaminants at RU-C2. In 2000/2001, a SVE treatability study was conducted at the northern side of Building 251 (IT Corporation 2002b).

Figure 4-8 presents time-series plots of TCE and cis-1,2-DCE in groundwater at RU-C2; Figure 4-9 shows vinyl chloride, 1,2-DCB, and 1,4-DCB. The analytical results for RU-C2 wells indicate the following:

TCE

- The maximum TCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR28MW300F (9.4 µg/L in the 2Q2007 event), and 12 µg/L in the 3Q2007 event). This well has generally shown the maximum TCE concentration in RU-C2, and the current quarter maximum TCE concentration is consistent with previous quarters.

- The current lateral extent of TCE is consistent with recent events.

- TCE concentrations in individual wells are variable over time, and fluctuate within a range of one order of magnitude or less. Anomalously high TCE concentrations were reported in two RU-C2 wells in 1Q2005 (wells IR58MW32B and IR58MW31A). TCE concentrations in individual wells in the current quarter are approximately the same as 2Q2004 (beginning of time-series plot).

- Water quality criteria for TCE were exceeded in one or both of the two most recent quarterly events in three RU-C2 wells (wells IR28MW189F, IR28MW300F and IR58MW32B).

Cis-1,2-DCE

- The maximum cis-1,2-DCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR58MW33B (9.6 µg/L in the 2Q2007 event, and 17 µg/L in the 3Q2007 event). Maximum cis-1,2-DCE concentrations in RU-C2 have historically been reported in well IR58MW33B (majority of events) and well IR58MW32B.

- The current lateral extent of cis-1,2-DCE is consistent with recent events.

- cis-1,2-DCE concentrations in individual wells are variable over time, and fluctuate within a range of one order of magnitude or less. No contaminant concentration trends are evident.

- Water quality criteria for cis-1,2-DCE were exceeded in one or both of the two most recent quarterly events in three RU-C2 wells (wells IR28MW216F, IR58MW32B and IR58MW33B).

Vinyl Chloride

- The maximum vinyl chloride concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR58MW31A (120 µg/L in the 2Q2007 event, and 16 µg/L in the 3Q2007 event). This well has consistently shown the maximum vinyl chloride concentration in RU-C2, and the current quarter maximum vinyl chloride concentration in this well is at a historical minimum for this well.

- The current lateral extent of vinyl chloride is consistent with recent events.

- Vinyl chloride concentrations in individual wells are variable over time, and fluctuate within a range between one and two orders of magnitude. Vinyl chloride concentrations in well IR58MW31A have shown an overall downward trend since September 2004.

- Water quality criteria for vinyl chloride were exceeded in one RU-C2 well (IR58MW31A) in both of the two most recent quarterly events.

1,2-DCB

- The maximum 1,2-DCB concentrations in the two sampling events comprising the current semi-annual reporting period were reported in: well IR58MW31A (24 µg/L [estimated value] in the 2Q2007 event, and 3.6 µg/L in the 3Q2007 event). This well has consistently shown the maximum 1,2-DCB concentration in RU-C2.

- The current lateral extent of 1,2-DCB is consistent with recent events.

- 1,2-DCB chloride concentrations in individual wells are variable over time, and fluctuate within a range of approximately one order of magnitude. The most recent (3Q2007) 1,2-DCB concentration in well IR58MW31A is a historical minimum, and there has been an overall downward trend in concentration in this well since September 2004.

- Water quality criteria for 1,2-DCB were not exceeded in any RU-C2 wells in either of the two most recent quarterly events.

1,4-DCB

- The maximum 1,4-DCB concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR58MW31A (180 µg/L in the 2Q2007 event, and 30 µg/L in the 3Q2007 event). This well has consistently shown the maximum 1,4-DCB concentration in RU-C2. The 3Q2007 concentration in this well is a historical minimum.

- The current lateral extent of 1,4-DCB is consistent with recent events.

- 1,4-DCB chloride concentrations in individual wells are variable over time, and fluctuate within a range of approximately one order of magnitude. In two wells

(IR58MW31A and IR58MW33B), the most recent (3Q2007) concentrations are one order of magnitude below concentrations reported in early 2004. In well IR58MW32B, current semi-annual reporting period concentrations approximate those reported in early 2004.

- Water quality criteria for 1,4-DCB were exceeded in two RU-C2 wells (wells IR58MW31A and IR58MW32B) in both of the two most recent quarterly events.

Other Analytes

- Water quality criteria were exceeded in RU-C2 wells in one or both of the two most recent quarterly events for the following other analytes: benzene, carbon tetrachloride, chlorobenzene, hexavalent chromium, total chromium, PCB-1260, and tetrachloroethylene.

4.2.2.3 RU-C4

Potential contaminant sources at RU-C4 include: five steel dip tanks containing solvents, paints, acids, and metals located in Building 281; a sump area; solvent-containing USTs; and an above ground storage tank containing sulfuric acid. The primary contaminant at RU-C4 is TCE. Concentrations of PCE, cis-1,2-DCE, and vinyl chloride have also been reported, but at much lower concentrations and over smaller areas than those of TCE. Treatability studies at RU-C4 have included:

- SVE treatability study in 2000/2001 at the northeast corner of Building 272 (IT Corporation 2002d).
- Zero valent iron (ZVI) injection pilot test at RU-C4 in 2002 (TTEMI 2003).
- Zero valent iron (ZVI) injection pilot test at RU-C4 in 20042005 (ITSI 2005).

Figure 4-10 presents time-series plots of TCE and cis-1,2-DCE in groundwater at RU-C4; Figure 4-11 shows vinyl chloride, 1,2-DCB, and 1,4-DCB.

The analytical results for RU-C4 wells indicate the following:

TCE

- The maximum TCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR28MW406 (130 µg/L in the 2Q2007 event, and 190 µg/L in the 3Q2007 event). This well has consistently shown maximum TCE concentrations in RU-C4, and the current semi-annual reporting period maximum TCE concentration is less than the historical maximum in RU-C4 (approximately 250 µg/L reported in 3Q2004).
- The current lateral extent of TCE is consistent with recent events.
- TCE concentrations in individual wells are variable over time, and fluctuate within a

range between one and two orders of magnitude. No contaminant concentration trends are evident. The 3Q2007 TCE concentrations in the majority of RU-C4 wells are at or below those reported in 2004. Current semi-annual reporting period TCE concentrations in two wells (IR28MW350F and IR28MW311A) are above those reported in early 2004.

- Water quality criteria for TCE were exceeded in one or both of the two most recent quarterly events in six RU-C4 wells (IR28MW211F, IR28MW272F, IR28MW312F, IR28MW350F, IR28MW355F, and IR28MW406).

Cis-1,2-DCE

- The maximum cis-1,2-DCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR28MW211F (67 µg/L in both the 2Q2007 and 3Q2007 events). This well has shown maximum cis-1,2-DCE concentrations in RU-C4 since mid-2005.

- The current lateral extent of cis-1,2-DCE is consistent with recent events.

- cis-1,2-DCE concentrations in three wells have shown an order of magnitude decrease since early 2004: wells IR28MW211F, IR28MW311A, and IR28MW407. In other wells, cis-1,2-DCE concentrations are variable over time, and fluctuate within a range of one order of magnitude.

- Water quality criteria for cis-1,2-DCE were exceeded in one or both of the two most recent quarterly events in three RU-C4 wells (wells IR28MW211F, IR28MW406, and IR28MW407).

Vinyl Chloride

- The maximum vinyl chloride concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR28MW211F (25 µg/L in the 2Q2007 event, and 78 µg/L [estimated value] in the 3Q2007 event). Maximum vinyl chloride concentrations in RU-C4 have historically been reported in wells IR28MW407 and IR28MW211F.

- The current lateral extent of vinyl chloride is consistent with recent events.

- Vinyl chloride concentrations in individual wells are variable over time, and fluctuate within a range between one and two orders of magnitude. An anomalously low concentration was reported in IR28MW407 in 3Q2006, and has subsequently rebounded to near historical maximum concentration.

- Water quality criteria for vinyl chloride were exceeded in both of the two most recent quarterly events in two RU-C4 wells (wells IR28MW211F and IR28MW407).

1,2-DCB

- The maximum 1,2-DCB concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR28MW407 (96 µg/L in the 2Q2007 event, and 62 µg/L in the 3Q2007 event). This well has consistently shown maximum historical concentrations in RU-C4 wells.

- The current lateral extent of 1,2-DCB is consistent with recent events.

- 1,2-DCB concentrations in well IR28MW407 decreased approximately 200% between 2Q2004 and 2Q2005, rebounded to a concentration approximately 50% of the concentration reported in early 2004, and decreased in the most recent event (3Q2007) to near historical minimum. 1,2-DCB concentrations in IR28MW211F are relatively stable.

- Water quality criteria for 1,2-DCB were not exceeded in any RU-C4 wells in either of the two most recent quarterly events.

1,4-DCB

- The maximum 1,4-DCB concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR28MW407 (22 µg/L in the 2Q2007 event, and 14 µg/L in the 3Q2007 event). This well has consistently shown the historical maximum 1,4-DCB concentrations in RU-C4.

- The current lateral extent of 1,4-DCB is consistent with recent events.

- 1,4-DCB concentrations in well IR28MW407 decreased approximately 60% between 3Q2004 and 2Q2005, and subsequently have been relatively stable. 1,4-DCB concentrations in IR28MW211F are low and stable.

- Water quality criteria for 1,4-DCB were exceeded in both of the two most recent quarterly events in one RU-C4 well (well IR28MW407).

Other Analytes

- Water quality criteria were exceeded in RU-C4 wells in both of the two most recent quarterly events for the following other analytes: benzene, carbon tetrachloride and Freon 150.

4.2.2.4 RU-C5

Two principal sources of groundwater contamination at RU-C5 are the sump and dip tank in Building 134 located in IR-25, and the former fuel tank farm located in IR-06. The primary concern for RU-C5 is chlorinated solvents, but other VOCs, SVOCs, pesticides, PCBs, and metals are also present in groundwater at IR-25. Releases from these two source areas have resulted in two separate but closely-spaced VOC plumes in groundwater. Two treatability studies have been conducted at Building 134:

- SVE treatability study in 2000/2001 (IT Corporation 2001).
- *In Situ* Bioremediation (ISB) treatability study in 2004/2005 (Shaw Environmental 2005).

Figure 4-12 presents time-series plots of TCE and cis-1,2-DCE in groundwater at RU-C5; Figure 4-13 shows vinyl chloride, 1,2-DCB, and 1,4-DCB. Note that well IR25MW16A is not assigned by the SAP to RU-C5, but is included in the discussion of RU-C5 due to its proximity and relationship to RU-C5 contamination. The analytical results for RU-C5 wells indicate the following:

TCE

- The maximum TCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR06MW59A1 (230 µg/L in the 2Q2007 event, and 140 µg/L in the 3Q2007 event). Well IR25MW16A also had a concentration of 140 µg/L in the 3Q2007 event). Maximum TCE concentrations have been reported in well IR06MW59A1 for four consecutive quarters; prior to that time maximum TCE concentrations were reported in well IR25MW16A
- The current lateral extent of TCE is consistent with recent events.
- TCE concentrations in individual wells are variable over time, and fluctuate within a range of approximately one order of magnitude, with one exception: an order of magnitude increase in TCE concentration was reported in well IR06MW59A1 in 4Q2006 relative to the previous quarterly events. TCE concentrations in that well have subsequently shown an overall decrease. No contaminant concentration trends are evident.
- Water quality criteria for TCE were exceeded in one or both of the two most recent quarterly events in four RU-C5 wells (wells IR06MW32A, IR06MW35A, IR06MW59A1, and IR25MW16A).

Cis-1,2-DCE

- The maximum cis-1,2-DCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR25MW16A (100 µg/L in the 2Q2007 event), and well IR06MW59A1 (100 µg/L in the 3Q2007 event). The TCE concentration in well IR25MW16A in 3Q2007 was 98 µg/L. Well IR25MW16A has consistently showed maximum or near maximum cis-1,2-DCE concentrations in RU-C5. The current semi-annual reporting period maximum TCE concentration is consistent with previous quarters.
- The current lateral extent of cis-1,2-DCE is consistent with recent events.
- cis-1,2-DCE concentrations in individual wells are variable over time, and fluctuate within a range of approximately one order of magnitude. No contaminant

concentration trends are evident, except that TCE concentrations in the most recent quarter are at or near historical maxima in two wells (IR06MW59A1 and IR06MW40A).

- Water quality criteria for cis-1,2-DCE were exceeded in both of the two most recent quarterly events in three RU-C5 wells (wells IR06MW35A, IR06MW59A1, and IR25MW16A).

Vinyl Chloride

- The maximum vinyl chloride concentrations in the two sampling events comprising the current semi-annual reporting period were reported in well IR06MW40A (150 µg/L in the 2Q2007 event, and 130 µg/L [estimated value] in the 3Q2007 event). This well, located on the downgradient (north) leading edge of the IR-06 VOC plume, has shown the maximum vinyl chloride concentration since 4Q2006. Previously, well IR06MW59A1 located in the upgradient portion of that plume showed maximum vinyl chloride concentrations. The current semi-annual reporting period maximum concentration is near the historical maximum reported in RU-C5.

- Vinyl chloride concentrations in two wells (IR06MW59A1 and IR06MW35A) have shown a general decrease since early 2004. Well IR25MW16A has shown stable vinyl chloride concentrations since mid-2006. Well IR06MW40A showed a sharp concentration increase, from non-detect in 3Q2006 to over 100 µg/L by 1Q2007.

- Water quality criteria for vinyl chloride were exceeded in both of the two most recent quarterly events in five RU-C5 wells (wells IR06MW32A, IR06MW35A, IR06MW40A, IR06MW59A1, and IR25MW16A).

- The increase in vinyl chloride concentration in downgradient well IR06MW40A since mid-2006 indicates that the IR-06 VOC plume is migrating downgradient (to the north-northeast).

1,2-DCB

- The maximum 1,2-DCB concentrations in the current semi-annual reporting period were reported in well IR06MW35A (1.4 µg/L in the 2Q2007 event, and 6.5 µg/L [estimated value] in the 3Q2007 event). The current semi-annual reporting period maximum concentration is below historical maxima.

- The current lateral extent of 1,2-DCB is consistent with recent events.

- 1,2-DCB concentrations are highly variable over time, and fluctuate in a range between one and two orders of magnitude. No contaminant concentration trends are evident.

- Water quality criteria for 1,2-DCB were not exceeded in any RU-C5 wells in either of the two quarterly events comprising the current semi-annual reporting period.

1,4-DCB

- The maximum 1,4-DCB concentrations in the current semi-annual reporting period were reported in well IR06MW35A (0.43 µg/L [estimated value] in the 2Q2007 event, and 1.7 µg/L [estimated value] in the 3Q2007 event). 1,4-DCB concentrations are highly variable over time, and fluctuate in a range between one and two orders of magnitude. No contaminant concentration trends are evident.

- Water quality criteria for 1,4-DCB were not exceeded in any RU-C5 wells in either of the two quarterly events comprising the current semi-annual reporting period.

Other Analytes

- Water quality criteria were exceeded in RU-C5 wells in one or both of the two most recent quarterly events for the following other analytes: benzene, carbon tetrachloride, total chromium, Freon 150, hexavalent chromium, nickel, tetrachloroethene, and trans-1,2-DCE.

4.2.2.5 NAPL Measurements in Parcel C

Measurements of light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL) are performed annually, in the third quarter of each year. In the 3Q2007 event, NAPL measurements were made in three Parcel C wells (wells IR25MW11A, IR25MW54A and IR25MW902B). Table 4-1 summarizes the results of the NAPL measurements. Figure 4-14 shows the lateral distribution of NAPL in the measurement event.

No DNAPL was identified in any of the three Parcel C monitoring wells. LNAPL was identified in one of the three wells (well IR25MW21A, LNAPL thickness was 0.21 feet).

4.2.3 Parcel D

The area of concern in Parcel D is IR-09. The primary sources for groundwater contamination at IR-09 are associated with industrial metal finishing and painting. The contaminant releases at IR-09 have resulted in hexavalent chromium, cyanide, and VOC contamination.

Figure 4-15 presents time-series plots of total chromium and hexavalent chromium in groundwater at IR-09.

The analytical results for IR-09 wells indicate the following:

Hexavalent and Total Chromium

- The maximum hexavalent chromium concentrations in the two sampling events comprising the current semi-annual reporting period were both reported in the sample from well IR09PPY1 (601 µg/L in the 2Q2007 event, and 489 µg/L in the 3Q2007 event). Likewise, maximum total chromium concentrations were reported in well IR09PPY1 (644 µg/L in the 2Q2007 event, and 506 µg/L in the 3Q2007 event). This

well has shown maximum hexavalent and total chromium concentrations in IR-09 since 4Q2005. The current semi-annual reporting period concentration maxima are near historical maxima.

- The current lateral extent of hexavalent and total chromium is consistent with recent events.
- Hexavalent and total chromium concentrations are have been relatively stable since 4Q2005.
- Water quality criteria for total chromium were exceeded in one or both of the quarterly events comprising the current semi-annual reporting period in seven IR-09 wells and were exceeded for hexavalent chromium in three IR-09 wells.

TCE

- The maximum TCE concentrations in the two sampling events comprising the current semi-annual reporting period were reported in: well IR09MW51F (29 µg/L in the 2Q2007 event, and 37 µg/L in the 3Q2007 event). This well has consistently shown the maximum TCE concentrations in IR-09. The 3Q2007 TCE concentration is near the historical maximum (40 µg/L in 3Q2006) in this well.
- The current lateral extent of TCE is consistent with recent events.
- Water quality criteria for TCE were exceeded in one IR-09 well (well IR09MW51F) in both of the two most recent sampling events.

Other Analytes

- Water quality criteria were not exceeded for any other analytes in IR-09 wells in either quarterly event of the current semi-annual reporting period.

4.2.4 Parcel E

The two areas of concern in Parcel E include: the Northwest Bay Fill Area (NBFA), and Former Oil Reclamation Ponds Area (ORPA).

4.2.4.1 Northwest Bay Fill Area

The NBFA is primarily located in IR-02 and IR-36 (see Plate 1). The contamination in the groundwater at the NBFA is associated with the former disposal area along the shoreline near Building 600. The NBA contains construction debris and industrial wastes. In addition to disposal debris (such as paint cans, drums, tanks, and pipe lagging) and liquid wastes (such as solvents and waste oils), potential sources of groundwater contamination include radium-containing devices removed from Navy ships and submarines that were disposed of in this area.

Water quality criteria were exceeded in NBFA wells in one or both of the two most recent quarterly events for the following analytes: barium, copper, nickel, selenium, vinyl chloride and zinc.

The concentrations and lateral extent of contaminants in this area are consistent with recent events.

4.2.4.2 Former Oil Reclamation Ponds Area

The ORPA is located in IR-03 (see Plate 1), and consisted of two former oil ponds used as part of a waste oil reclamation system. In addition to VOCs, PCBs, and TPH in waste oil, potential contaminant sources include sandblasting wastes used as fill material and disposed on the ground surface, industrial waste fill material containing various metal pipes, plastics, and tires, and alleged dumping of liquid and sandblast waste.

Water quality criteria were exceeded in ORPA in one or both of the two most recent quarterly events for the following analytes: antimony, arsenic, barium, benzene, copper, nickel, p-dioxane, selenium, thallium, and vinyl chloride.

The concentrations and lateral extent of contaminants in this area are consistent with recent events.

4.2.4.3 Radionuclides

In each of the 2Q2007 and 3Q2007 events, groundwater samples collected from 6 Parcel E wells (wells IR02MW126A, IR02MW147A, IR02MW149A, IR02MW179A, IR02MW209A, and IR02MWB-1) were analyzed for the radionuclides radium-226 and cesium-137. No radiological activity above the minimum detectable activity (MDA) was reported in any of the samples, in either of the sampling events.

4.2.4.4 NAPL Measurements in Parcel E

Measurements of light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL) are performed annually, in the third quarter of each year. In the 3Q2007 event, NAPL measurements were made in 15 wells in Parcel E. Table 4-1 summarizes the results of the NAPL measurements. Figure 4-14 shows the lateral distribution of NAPL in the measurement event.

Findings of the NAPL measurement in Parcel E include:

- At IR-03 (the ORPA in Parcel E, near the southwest shoreline) LNAPL was identified in eight of the 12 wells in which NAPL measurements were made. The LNAPL thickness ranged from 0.05 ft to 5.65 ft. Three of the wells had LNAPL thicknesses of 1.5 feet or less. Two of the wells had LNAPL thicknesses of 2.30 feet and 3.31 feet. Three of the wells had LNAPL thicknesses between 4.53 feet and 5.65 feet.

- At the remaining three wells measured for NAPL in the central portion of Parcel E, two wells had no measurable LNAPL (IR39MW21A and PA36MW08A), and the other well (IR12MW21A) had LNAPL thickness of 0.01 ft.
- No DNAPL was present in any of the wells in which NAPL measurements were made.
- The distribution and thickness of NAPL are generally comparable to that measured in 4Q2006.

4.2.5 Parcel E-2

The primary area of concern in Parcel E-2 is the Industrial Landfill Area (ILA), which comprises approximately 22 acres and is primarily located in IR-01, but also extends into portions of IR-02, IR-12, IR-56, and IR-72. The ILA includes the area of known waste disposal, as well as areas to the southwest of the landfill ("Panhandle" area) and to the southeast of the landfill ("Other Landfill Area"). The total area is also referred to in the SAP as the Landfill Industrial Landfill Study Area. The boundaries of the Industrial Landfill Study Area are generally coincident with the Parcel E-2 boundaries. Potential contaminant sources associated with the ILA include sandblasting wastes, asbestos wastes, paints, solvents, waste fuels and oils containing PCBs, metal debris, and releases from drums. Note that wells IR01MW60A and IR01MW64A are not assigned in the SAP to the ILA, but are discussed herein as ILA wells due to their location.

Water quality criteria were exceeded in ILA wells in one or both of the two most recent quarterly events for the following analytes: 1,1-DCA; 1,1-DCE; 1,4-DCB; ammonia; antimony; arsenic; barium; benzene; chlorobenzene; total chromium; cis-1,2-DCE; copper; cyanide; Freon-150; mercury; nickel; selenium; TCE; tetrachloroethene; thallium; and, vinyl chloride.

The concentrations and lateral extent of contaminants in Parcel E-2 are consistent with previous events.

4.3 Data Quality

4.3.1 Evaluation of Quality Control Samples

The following subsections provide an evaluation of the analytical results for field duplicate samples, equipment rinsate (blank) samples, trip blank samples, source blank samples and MS/MSD samples. Field and laboratory personnel implemented standard quality assurance/quality control (QA/QC) procedures to evaluate the quality of the data collected during the sampling events conducted in the semi-annual reporting period (2Q2007 and 3Q2007). Field QC consisted of collecting field duplicate samples, equipment rinsate blank samples (rinsate samples), trip blank samples, source blank samples, and matrix spike/matrix spike duplicate (MS/MSD) samples in accordance with the SAP (TtEMI 2004).

A total of 210 groundwater samples, with accompanying 162 field QC samples were collected from April 30, 2007 to May 22, 2007 for the 2Q2007 sampling event. A total of 205

groundwater samples, with accompanying 99 field QC samples were collected from August 8, 2007 to August 28, 2007 for the 3Q2007 sampling event. The samples were submitted for analysis to Agriculture and Priority Pollutants Laboratories, Inc. (APPL) in Fresno, California. In addition, radiochemistry samples were submitted to Eberline Services, Inc. for Radium-226 and Cesium-137 analyses. Laboratory Data Consultants (LDC) of Carlsbad, California validated the laboratory analytical data according to the procedures outlined in the following documents:

Laboratory Data Consultants (LDC) of Carlsbad, California validated the laboratory analytical data according to the procedures outlined in the following documents:

- USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (U.S. Environmental Protection Agency [EPA] 1999).
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA 2004).
- USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition. Updates I, II, IIA, IIB, III, and IIIA (EPA 1998).

One hundred percent of the data were subject to a data quality assessment (i.e., review, verification, validation, and usability assessment), with approximately 80 percent of the data undergoing Level III data validation and 20 percent of the data undergoing Level IV validation in accordance with the SAP.

The objective of data validation is to evaluate whether the quality of the chemical data is adequate for the intended use(s), as defined by the precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) parameters in the EPA Requirements for Quality Assurance Project Plans (EPA 2002) and the SAP. PARCCS parameters were assessed by:

- Reviewing and comparing field and laboratory QC data to the precision and accuracy criteria defined in the SAP.
- Reviewing the overall analytical process, including holding time, calibration, analytical or matrix performance, and analyte identification and quantitation.
- Assigning qualifiers to data when associated QA/QC criteria were not achieved.
- Evaluating and summarizing implications of the frequency and severity of qualifiers in the validated data.

Field Duplicate Samples

During the current semi-annual reporting period, field duplicate pairs were collected from 22 of the 210 wells sampled (2Q2007 event), and from 22 of the 205 wells sampled (3Q2007 event), meeting the minimum 10 percent requirement as specified in the SAP. Analytical results for these field duplicate samples are included in Appendix H.

Relative percent differences (RPDs) were calculated using the field duplicate pair results. Because neither the RAMP (TtEMI 1999) nor the SAP establishes a maximum acceptable RPD

for field duplicate pairs, a generally accepted conservative standard of 30 percent was selected to be the acceptable criterion. In the 2Q2007 event, nineteen of the 1,199 field duplicate paired results (1.6 percent) exceeded the 30 percent RPD criterion. In the 3Q2007 event, six of the 1,073 field duplicate paired results (0.6 percent) exceeded the 30 percent RPD criterion. Analytical data were not qualified on the basis of field duplicate results, for either of the sampling events.

Equipment Rinsate Samples

During the current semi-annual reporting period, rinsate samples were collected in accordance with the SAP requirement of one rinsate sample per field team per set of decontaminated equipment per day. The analytical results for the equipment rinsate samples collected in the current semi-annual reporting period are included in Appendix F.

During the 2Q2007 event, 58 rinsate samples were collected. The rinsate samples contained low concentrations of some of the trihalomethane compounds (i.e., chloroform and bromodichloromethane), as well as several metals. These analytes are regularly reported at relatively consistent concentrations in the source water used in the equipment decontamination process. Of the 3,050 results generated, 17 analytes were reported (0.6 percent). Six results were qualified as nondetected due to rinsate sample detections. With the exception of the six results, the remaining data were considered unaffected, and thus unqualified, as a result of the rinsate sample detections.

During the 3Q2007 event, three rinsate samples were collected. The rinsate samples contained low concentrations of some of the trihalomethane compounds (i.e., chloroform and bromodichloromethane), as well as several metals. These analytes are regularly reported at relatively consistent concentrations in the source water used in the equipment decontamination process. Of the 423 results generated, a total of 11 analytes were reported (2.6 percent). One sample was qualified as nondetected for vanadium due to a rinsate sample detection. With the exception of this one result, the overall data quality was deemed to be unaffected, and thus unqualified, as a result of the rinsate sample detections.

Trip Blank Samples

Laboratory-prepared trip blank samples, containing analyte-free water, accompanied each field team during sampling activities and were included in each of the coolers that contained samples for VOC and TPH (purgeable) analyses, as specified in the SAP.

Of the 3,636 trip blank results generated in the 2Q2007 event, seven analytes were reported (0.4 percent). Twenty results were qualified as nondetected due to trip blank sample detections. With the exception of these 20 results, the remaining data were deemed to be unaffected, and thus unqualified, as a result of the trip blank sample detections.

Of the 3,127 trip blank results generated in the 3Q2007 event, 7 analytes were reported (0.7 percent). Eight results were qualified as nondetected due to trip blank sample detections. With the exception of these eight results, the remaining data were deemed to be unaffected, and thus unqualified, as a result of the trip blank sample detections.

Source Blank and MS/MSD Samples

In the 2Q2007 event, field personnel collected one source blank samples and 15 MS/MSD samples to meet the requirements of the SAP. In the 3Q2007 event, field personnel collected two source blank samples and 12 MS/MSD samples.

4.3.2 Overall Data Quality

Of the 21,884 individual analytical results generated in 2Q2007:

- A total of 1,426 results were qualified as estimated ("J" or "UJ" qualifiers), but are considered usable.
- Nine results (0.6 percent) were rejected.

Therefore, 99.96 percent of the 2Q2007 groundwater analytical data are considered usable, which meets the completeness criteria of 95 percent as specified in the SAP.

Of the 18,741 individual analytical results generated in 3Q2007:

- A total of 2,322 results were qualified as estimated ("J" or "UJ" qualifiers), but are considered usable.
- None of the results were rejected.

Therefore, 100 percent of the 3Q2007 groundwater analytical data are considered usable, which meets the completeness criteria of 95 percent as specified in the SAP.

A project chemist reviewed the data validation reports for completeness, accuracy, and adherence to the SAP. Although some qualifiers were applied to the analytical data, the PARCCS criteria for the majority of the data were successfully met. Supporting documentation, including laboratory analytical results and data validation (Levels III and IV) reports, are included in Appendix F.

4.4 Deviations from the SAP

Tables 4-11 and 4-12 list all SAP deviations during the 2Q2007 and 3Q2007 sampling events, respectively. The SAP deviations reflect modifications to the pre-sampling purging parameter stabilization criteria developed at the HPS Groundwater Meeting on July 19, 2006:

1. The three most important groundwater stabilization parameters, in order of decreasing importance, are: (1) specific conductance, (2) dissolved oxygen, and (3) pH. The stabilization criteria for these parameters are: (1) specific conductance: plus or minus 3%, (2) pH: plus or minus 0.2 pH units, and (3) dissolved oxygen: plus or minus 10% or 0.2 mg/L (whichever is greater).

2. For determining whether a well has stabilized, the minimum and maximum values of the last three readings for specific conductance, dissolved oxygen and pH are compared, without regard to order.

3. Other parameters, including temperature, turbidity, and oxidation-reduction potential are monitored and recorded. However, they are not used to determine stabilization, and are used only for informational purposes. The stabilization criteria previously utilized for these parameters are: (1) temperature: plus or minus 0.2 °C, (2) turbidity: plus or minus 10% of the prior reading or three consecutive readings below 10 nephelometric turbidity units (NTUs) (whichever is greater), and (3) oxygen-reduction potential: plus or minus 20 milliVolts.

The following summarizes SAP deviations from each event in the current semi-annual reporting period.

4.4.1 2Q2007 Event

- Water levels were not measured in 39 monitoring wells because these wells were inaccessible (18 wells), were damaged (5 wells), were obstructed (3 wells), or were wells where NAPL has historically been present (13 wells).
- Groundwater samples were not collected from 22 monitoring wells because these wells were inaccessible (6 wells), were damaged (3 wells), were obstructed (5 wells), had insufficient water (2 wells), or were wells where NAPL has historically been present (6 wells).

The sampling pump intakes were placed within the well screened intervals during the purging and sampling of all wells, with one exception. In well IR03MW218A2, the pump intake was placed at a depth of 17.8 feet below top of casing, which was just above the top of screen depth of 18.1 feet.

4.4.2 3Q2007 Event

- Water levels were not measured in 41 monitoring wells because these wells were inaccessible (15 wells), were damaged (6 wells), were obstructed (3 wells), were wells where NAPL has historically been present (13 wells), or had been decommissioned and compliance status not yet changed by a SAP addendum (4 wells).
- Groundwater samples were not collected from 28 monitoring wells because these wells were inaccessible (11 wells), were damaged (4 wells), were obstructed (5 wells), had insufficient water for sampling (4 wells), or were wells where NAPL has historically been present (4 wells).
- Pre-sampling purging parameters did not meet the stabilization criteria (see criteria below), and the required 14 Liter maximum was not purged prior to sampling in 5 wells.
- Purging parameters were not measured at the required 1-Liter maximum frequency in one well, although the well stabilized at 8 Liters purged.

The sampling pump intakes were placed within the well screened intervals during the purging and sampling of all wells.

Table 4-13 summarizes recurring SAP deviations (inability to measure water level or collect

a groundwater sample) that are due to well yield and well condition, over the previous year. This table is updated quarterly (wells where deviations have been resolved are deleted, and wells with new deviations are added). The objective of this table is to identify compliance wells for which corrective action may be required to continue meeting BGMP objectives. In summary:

- 27 wells had a deviation in 2 or more quarterly events.
- Types of deviations related to well yield and well condition include: insufficient water for sampling; physical conditions (well obstruction/damage), and inaccessibility.
- Deviations in the two most recent quarters precluded depth to water measurement (only) at 10 wells, groundwater sampling (only) at 9 wells, and both depth to water measurement and sampling at 8 wells.

Table 4-13 includes recommended corrective actions to address the recurring SAP deviations. These corrective actions will be formally addressed in an upcoming SAP Addendum.

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5.0 Summary and Conclusions

Groundwater elevations were measured in the two quarterly events comprising the current semi-annual reporting period: 370 wells on May 9, 2007 (2Q2007), and 366 wells on August 7, 2007 (3Q2007). Groundwater in the A-Aquifer generally flows toward San Francisco Bay from upland recharge areas in the non-Navy property. In Parcels B and C, flow toward the Bay is relatively uniform except for small, relatively minor disturbances that may be caused by preferential flow into and recharge from subsurface utility trenches. Groundwater elevations in much of Parcels D and E have historically been anomalously low (often below sea level), compared to those elsewhere on HPS. The potentiometric surface in Parcel D is interpreted to be highly influenced by groundwater flow into ruptured sanitary sewer lines that drain into a collection facility at Building 819. The groundwater flow pattern in Parcel E-2 shows much less influence from groundwater flow into ruptured sanitary sewer lines than is present in Parcels D and E. Relative to the previous quarterly events, the surface area comprising the groundwater depression decreased between approximately 400% and 500%, indicating a rise in water levels and conditions more indicative of natural hydrology.

Groundwater sampling was conducted in the two quarterly events comprising the current semi-annual reporting period: 210 wells between April 30 and May 22, 2007 (2Q2007), and 205 wells between August 8 and August 28, 2007 (3Q2007).

In 2Q2007, water quality criteria exceedances (MCLs, HGALs, and/or NAWQC) were reported in 76 analyses for metals (11 different metals), 92 analyses for VOCs (12 different VOCs), and 25 analyses for four other compounds (ammonia, cyanide, p-dioxane, and PCB-1260). No water quality exceedances were reported for SVOCs or pesticides.

In 3Q2007, water quality criteria exceedances (MCLs, HGALs, and/or NAWQC) were reported in 55 analyses for metals (12 different metals), 80 analyses for VOCs (12 different VOCs), and 30 analyses for six other compounds (2-Methylnaphthalene, ammonia, cyanide, naphthalene, p-dioxane, and PCB-1260). No water quality exceedances were reported for pesticides.

The current magnitude and lateral extent of contamination in groundwater are generally consistent with previous quarters, with one exception: vinyl chloride in RU-C5 well IR06MW40A, monitoring the IR-06 VOC plume, appears to be migrating downgradient (to the north-northeast).

The data validation process determined that 99.96 percent of the current event groundwater analytical data (including field-collected samples and QA/QC samples) are considered usable in the 2Q2007 event, and 100 percent for 3Q2007.

As of the close of the current semi-annual reporting period, the following changes had been made to the compliance monitoring well network:

- Ten pre-existing wells were added to the program, and five new wells were installed (all for depth to water measurement and sampling/analysis).

- One pre-existing well was added to the program for the 2Q2007 event, then was decommissioned prior to the 3Q2007 event.
- Two wells were removed from the program due to physical condition or insufficient water for sampling.
- Nine wells were decommissioned, and removed from the compliance program.
- Sampling frequency was revised from quarterly to annual for three wells.
- The list of analytical methods was revised for four wells.
- Top of casing elevations (water level measurement points) were re-surveyed at 21 wells.
- Twenty seven wells were re-developed in an attempt to improve recharge and/or remove accumulated sediment.

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Tables

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Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR01MW02B	NNP	ILA	20.61	29.0	39.0	34.0	Y	Y	
IR01MW03A	NNP	ILA	19.89	12.8	27.8	21.0	Y	Y	
IR01MW05A	NNP	ILA	22.56	12.3	29.3	23.5	Y	Y	
IR01MW07A	E-2	ILA	19.02	7.3	24.3	NA	N[1]	N	decommissioned
IR01MW09B	E-2	ILA	10.05	32.0	42.0	37.0	Y	Y	
IR01MW10A	E-2	ILA	13.75	4.0	21.0	15.0	Y	Y	
IR01MW11A	E-2	ILA	17.96	7.1	19.1	NA	Y	N	
IR01MW12A	E-2	ILA	18.25	7.0	24.0	NA	Y	N	
IR01MW16A	E-2	ILA	24.55	15.4	30.4	NA	Y	N	
IR01MW17B	E-2	ILA	29.55	44.5	54.5	NPI	Y	Y	
IR01MW18A	E-2	ILA	23.58	15.6	33.6	NA	Y	N	
IR01MW26B	E-2	ILA	23.95	49.2	59.2	54.0	Y	Y	
IR01MW31A	E-2	ILA	13.81	6.7	24.7	17.0	Y	Y	
IR01MW366A	E-2	ILA	17.31	9.4	19.4	17.5	N	Y	
IR01MW366B	E-2	ILA	16.70	46.6	56.6	51.5	Y	Y	
IR01MW367A	E-2	ILA	12.12	4.4	14.4	NPI	Y	Y	
IR01MW38A	E-2	ILA	17.36	12.6	26.6	19.0	Y	Y	
IR01MW400A	NNP	ILA	11.58	7.4	22.4	NA	Y	N	
IR01MW401A	E	ILA	13.87	4.6	19.6	NA	N	N	
IR01MW402A	NNP	ILA	12.51	4.7	19.7	NA	Y	N	
IR01MW403A	NNP	ILA	13.00	5.9	21.9	14.5	Y	Y	
IR01MW403B	E-2	ILA	10.54	26.0	36.0	31.0	Y	Y	
IR01MW42A	E-2	ILA	13.28	18.5	27.0	NPI	Y	Y	
IR01MW43A	E-2	ILA	12.16	7.0	24.5	NA	N[1]	N[1]	decommissioned
IR01MW44A	E-2	ILA	9.22	6.6	10.6	NA	N[1]	N[1]	decommissioned
IR01MW47B	E-2	ILA	12.31	37.0	47.0	NA	N[1]	N[1]	decommissioned
IR01MW48A	E-2	ILA	10.96	7.9	20.9	14.7	Y	Y	
IR01MW53B	E-2	ILA	10.01	36.8	46.8	41.8	Y	Y	
IR01MW58A	E-2	ILA	9.19	6.4	18.9	NPI	Y	Y	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR01MW60A	E-2	ILA	14.60	11.0	21.0	16.0	Y[1]	Y[1]	
IR01MW62A	E-2	ILA	7.91	5.0	15.0	10.4	Y	Y	
IR01MW63A	E-2	ILA	7.88	5.8	19.8	12.8	N	Y	
IR01MW64A	E-2	ILA	14.27	8.6	18.6	14.0	Y[1]	Y[1]	
IR01MWI-2	E-2	ILA	13.22	6.4	21.4	NA	Y	N	
IR01MWI-3	E-2	ILA	13.80	5.2	18.2	NA	N[1]	N[1]	decommissioned
IR01MWI-5	E-2	ILA	24.18	12.9	27.9	NA	Y	N	
IR01MWI-6	E-2	ILA	9.55	4.7	12.2	NPI	N	Y	
IR01MWI-7	E-2	ILA	5.81	3.3	13.3	8.3	Y	Y	
IR01MWI-8	E-2	ILA	6.64	2.4	12.4	8.6	Y	Y	
IR01MWI-9	E-2	ILA	8.04	3.7	13.7	NA	Y	N	
IR01MWLF1A	E-2	ILA	20.83	8.7	23.7	20.0	Y	Y	
IR01MWLF2A	E-2	ILA	19.62	8.2	23.2	18.5	Y	Y	
IR01MWLF4A	E-2	ILA	14.88	5.3	25.3	NPI	Y	Y	
IR01MWLF4B	E-2	ILA	14.48	40.8	55.8	48.5	Y	Y	
IR01P03A	E	ILA	20.13	7.8	27.8	NA	N	N	decommissioned
IR01P03AA	E	ILA	21.86	12.4	27.4	NA	N	N	
IR01P03AB	E	ILA	19.87	11.4	26.4	NA	N	N	
IR01P04A	E	ILA	21.61	10.3	30.3	NA	N	N	
IR01P18AB	E	ILA	18.91	9.1	14.1	NA	N	N	
IR02MW101A1	E	NBFA	11.23	9.0	19.0	NA	Y	N	
IR02MW101A2	E	NBFA	11.22	29.0	36.0	NA	Y	N	
IR02MW114A1	E	NBFA	13.63	7.0	12.0	NA	Y	N	
IR02MW114A2	E	NBFA	12.43	13.8	25.8	NA	Y	N	
IR02MW114A3	E	NBFA	13.29	43.7	50.7	NA	Y	N	
IR02MW126A	E	NBFA	11.36	6.8	15.8	12.6	Y	Y	
IR02MW127B	E	NBFA	14.59	56.1	66.1	NA	N[1]	N[1]	decommissioned
IR02MW141A	E	NBFA	15.49	8.0	18.0	NA	N	N[1]	decommissioned
IR02MW146A	E	ORPA	11.30	7.9	19.9	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR02MW147A	E	NBFA	8.36	5.4	10.4	8.5	Y	Y	
IR02MW149A	E	NBFA	8.72	7.4	22.4	14.9	Y	Y	
IR02MW173A	E	ORPA	9.51	7.7	20.7	NA	Y	N	
IR02MW175A	E	IR-02	10.70	10.5	32.5	21.5	Y	Y	
IR02MW179A	E	IR-02	11.23	6.8	20.3	15.5	Y	Y	
IR02MW183A	E	IR-02	10.40	5.7	35.7	NA	Y	N	
IR02MW196A	E	IR-02	8.05	4.2	11.2	NA	Y	N	
IR02MW206A1	E	IR-02	7.43	3.9	8.9	NA	Y	N	
IR02MW206A2	E	IR-02	7.41	11.6	21.6	NPI	Y	Y	
IR02MW209A	E	IR-02	6.34	10.1	20.1	15.1	Y	Y	
IR02MW210B	E	IR-02	9.17	23.8	31.8	NA	Y	N	
IR02MW298A	E	NBFA	11.79	7.9	22.9	NA	Y	N	
IR02MW299A	E	IR-02	10.56	8.0	23.0	NA	Y	N	
IR02MW300A	E	IR-02	9.00	9.7	24.7	NA	N[1]	N[1]	decommissioned
IR02MW301A	E	IR-02	9.47	13.2	33.2	23.0	Y[1]	Y[1]	
IR02MW372A	E	NBFA	14.21	4.2	14.2	NA	N[1]	N	decommissioned
IR02MW373A	E	NBFA	11.34	4.5	9.5	NA	Y	N	
IR02MW87A	E	ILA	8.48	4.1	14.1	NA	N	N	
IR02MW89A	E	IR-02	10.08	7.5	22.5	NA	Y	N	
IR02MW93A	E	IR-02	7.25	3.6	18.6	NA	Y	N	
IR02MW97A	E	ORPA	8.95	7.3	24.3	NA	Y	N	
IR02MWB-1	E	ORPA	8.46	5.4	20.4	12.9	Y	Y	
IR02MWB-2	E	NBFA	11.88	4.7	19.7	NPI	Y	Y	
IR02MWB-3	E	NBFA	12.95	4.8	19.8	NA	N[1]	N[1]	decommissioned
IR02MWB-5	E	IR-02	4.74	3.0	17.0	NPI	Y	Y	
IR02MWC5-W	E	NBFA	7.49	4.4	14.4	NPI	Y	Y	
IR02P126AA	E	NBFA	10.58	5.8	15.8	NA	N	N	
IR02P126AB	E	NBFA	11.00	6.0	16.0	NA	N	N	
IR02P93AA	E	NBFA	6.93	4.1	19.1	NA	N	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR02P93AB	E	NBFA	7.11	3.5	18.5	NA	N	N	
IR02P97AA	E	ORPA	7.09	6.1	24.1	NA	Y	N	
IR02P97AB	E	ORPA	7.54	5.6	25.6	NA	N[1]	N	decommissioned
IR03MW218A1	E	ORPA	11.92	8.3	14.3	NA	Y	N	
IR03MW218A2	E	ORPA	12.26	18.1	23.1	20.5	Y	Y	
IR03MW218A3	E	ORPA	12.00	24.1	34.1	NA	Y	N	
IR03MW224A	E	ORPA	10.92	7.5	15.5	13.5	Y	Y	
IR03MW225A	E	ORPA	12.27	4.0	19.0	NA	Y	N	
IR03MW226A	E	ORPA	11.81	4.0	19.0	NA	Y	N	
IR03MW228B	E	ORPA	12.12	62.5	72.5	67.5	Y	Y	
IR03MW342A	E	ORPA	8.48	7.0	16.5	12.5	Y	Y	
IR03MW369A	E	ORPA	10.01	4.5	19.5	NPI	Y	Y	
IR03MW370A	E	ORPA	11.19	5.5	20.5	NPI	Y	Y	
IR03MW371A	E	ORPA	12.48	5.4	20.4	NPI	Y	Y	
IR03MW372A	E	ORPA	8.18	4.9	19.9	NA	Y	N	
IR03MW373B	E	ORPA	7.87	74.2	84.2	79.0	Y	Y	
IR03MWO-1	E	ORPA	11.92	3.7	18.7	NA	Y	N	
IR03MWO-2	E	ORPA	11.55	4.2	20.7	NA	Y	N	
IR03MWO-3	E	ORPA	9.22	5.1	20.1	NA	Y	N	
IR04MW09A	E	IR-04	9.34	4.5	19.5	NA	N	N	
IR04MW13A	E-2	ILA	12.55	7.1	22.1	17.0	Y	Y	
IR04MW31A	E-2	ILA	12.53	12.7	27.7	NA	Y	N	
IR04MW336A	E	NI	NI	NI	NI	NA	N[1]	N	Well not installed
IR04MW35A	E	IR-04	11.11	6.8	26.8	NA	N	N	
IR04MW36A	E-2	ILA	9.84	6.2	26.2	18.0	Y	Y	
IR04MW37A	E	IR-04	9.54	8.8	23.8	16.5	Y	Y	
IR04MW38A	E	IR-04	9.76	5.4	20.4	NA	Y	N	
IR04MW39A	E	IR-04	7.86	4.0	24.0	NA	N	N	
IR04MW40A	E	IR-04	7.16	4.3	26.3	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR04P31AA	E	ILA	11.89	9.9	19.9	NA	N	N	
IR04P31AB	E	ILA	12.14	11.2	31.2	NA	N	N	
IR04P38A	E	IR-04	9.81	7.4	22.4	NA	N	N	
IR05MW73A	E	IR-05	6.59	5.1	10.1	NA	Y	N	
IR05MW74A	E	IR-05	7.40	5.8	22.8	NA	N	N	
IR05MW76A	E	IR-05	4.97	3.0	12.0	NA	Y	N	
IR05MW77A	E	IR-05	10.43	8.4	34.2	NA	N	N	
IR05MW82A	E	IR-05	12.00	7.0	22.0	NA	Y	N	
IR05MW85A	E	IR-05	9.80	7.8	22.8	17.0	Y	Y	
IR05P77AA	E	IR-05	10.04	9.0	36.0	NA	N	N	
IR05P77AB	E	IR-05	9.62	5.7	35.7	NA	N	N	
IR06MW22A	C	RU-C5	10.00	4.6	9.6	NA	Y	N	
IR06MW22AD	C	RU-C5	10.08	3.4	8.4	NA	N	N	decommissioned
IR06MW23A	C	RU-C5	9.77	4.3	12.3	NA	N	N	decommissioned
IR06MW27A	C	RU-C5	11.75	4.1	10.8	NA	N	N	decommissioned
IR06MW30A	C	RU-C5	9.87	6.4	16.4	NA	N	N	decommissioned
IR06MW32A	C	RU-C5	9.90	4.9	14.9	10.5	Y	Y	
IR06MW32AD	C	RU-C5	10.02	5.9	13.4	NA	N	N	decommissioned
IR06MW34A	C	IR-06	10.37	6.3	11.3	NA	Y	N	
IR06MW35A	C	RU-C5	9.73	5.4	14.4	10.0	Y	Y	
IR06MW40A	C	RU-C5	10.08	6.5	20.0	14.0	Y	Y	
IR06MW41A	C	RU-C5	9.78	6.4	16.4	NA	Y	N	
IR06MW42A	C+	IR-06	11.89	8.9	13.9	12.5	Y	Y	
IR06MW44A	C	RU-C5	9.81	4.5	14.5	NA	Y	N	
IR06MW45A	C+	RU-C5	9.89	3.3	13.3	NA	N[1]	N	decommissioned
IR06MW46A	B	IR-06	9.46	6.4	16.4	NA	Y	N	
IR06MW47F	C	RU-C5	9.66	31.2	41.2	36.0	Y	Y	
IR06MW48F	C	RU-C5	10.03	9.4	19.4	NA	N	N	decommissioned
IR06MW49F	C	IR-06	11.49	8.6	18.6	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR06MW50F	C	IR-06	10.38	19.1	29.1	NA	N[1]	N[1]	decommissioned
IR06MW51F	C	RU-C5	10.19	26.4	36.4	NA	N	N	decommissioned
IR06MW52F	C	RU-C5	9.70	18.7	28.7	23.5	Y	Y	
IR06MW53F	C	RU-C5	10.51	12.8	22.8	18.0	N	Y	
IR06MW54F	C	RU-C5	35.02	40.8	50.8	46.0	Y	Y	
IR06MW55F	C	RU-C5	32.34	35.3	45.3	40.5	Y	Y	
IR06MW56F	C	IR-06	25.04	32.5	42.5	NA	Y	N	
IR06MW57F	C	IR-06	28.02	29.4	39.9	NA	Y	N	
IR06MW58F	C	IR-06	25.91	27.4	37.4	NA	N[1]	N	decommissioned
IR06MW59A1	C	RU-C5	9.13	4.6	9.6	8.0	Y	Y	
IR06MW59A2	C	RU-C5	9.15	19.6	29.6	24.5	N	Y	
IR06MW60A	C	IR-06	10.59	4.0	14.0	9.0	Y[1]	Y[1]	
IR06P30A	C	IR-06	10.12	6.8	16.8	NA	N	N	
IR06P54FA	A	IR-06	35.48	41.5	51.5	NA	N	N	
IR06P54FB	C	IR-06	34.96	41.4	51.4	NA	N	N	
IR07MW19A	B	IR-07	9.56	5.4	15.4	NPI	Y	Y	
IR07MW20A1	B	IR-07	9.26	5.5	23.5	16.5	Y	Y	
IR07MW20A2	B	IR-07	9.27	38.0	43.0	NA	N	N	decommissioned
IR07MW21A1	B	IR-07	13.89	9.5	19.5	16.9	N	Y	
IR07MW21A2	B	IR-07	14.42	30.5	35.5	NA	N	N	decommissioned
IR07MW23A	B	IR-07	15.76	6.4	16.4	NPI	Y	Y	
IR07MW24A	B	IR-07	16.26	8.1	18.1	15.1	Y	Y	
IR07MW25A	B	IR-07	12.67	11.4	21.4	16.4	Y	Y	
IR07MW26A	B	IR-07	14.50	8.6	19.5	15.6	Y	Y	
IR07MW27A	B	IR-07	16.15	10.7	20.7	NPI	Y	Y	
IR07MW28A	NNP	IR-07	12.03	7.9	17.9	13.8	Y	Y	
IR07MW29A	B	NI	NI	NI	NI	NA	N[1]	N	Well not installed
IR07MW30A	B	NI	NI	NI	NI	NA	N[1]	N	Well not installed
IR07MW31A	B	NI	NI	NI	NI	NA	N[1]	N	Well not installed

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR07MW93A	B	IR-07	19.53	18.9	28.9	NA	Y	N	
IR07MW94A	B	IR-07	15.15	14.0	24.0	NA	Y	N	
IR07MW95A	NNP	IR-07	16.60	13.7	23.7	NA	Y	N	
IR07MWP-1	B	IR-07	9.87	4.0	19.0	NA	N	N	decommissioned
IR07MWP-2	B	IR-07	9.77	3.7	18.7	NA	N	N	decommissioned
IR07MWS-1	B	IR-07	10.25	4.6	17.6	NA	N	N	decommissioned
IR07MWS-2	B	IR-07	12.71	7.2	17.2	13.9	Y	Y	
IR07MWS-2D	B	IR-07	9.13	2.5	17.5	NA	N	N	decommissioned
IR07MWS-3	B	IR-07	9.75	4.4	19.4	NA	N[1]	N	decommissioned
IR07MWS-4	B	IR-07	16.78	9.6	19.6	17.5	Y	Y	
IR07MWS-4D	B	IR-07	13.22	6.0	21.0	NA	N	N	decommissioned
IR07P20A	B	IR-07	9.57	4.3	24.3	NA	N	N	
IR08MW37A	E	IR-08	4.25	6.8	21.8	NA	N	N	
IR08MW38A	E	IR-08	6.82	6.1	24.1	NA	Y	N	
IR08MW39A	D	IR-08	5.05	5.6	35.6	NA	N	N	decommissioned
IR08MW40A	E	IR-08	5.41	7.4	27.4	NA	Y	N	
IR08MW41A	E	IR-08	6.34	4.9	24.9	NA	N	N	
IR08MW42A	E	IR-08	4.15	9.9	19.9	NA	N	N	decommissioned
IR08MW43A	D	IR-08	8.82	6.2	21.2	NA	N	N	decommissioned
IR08MW44A	E	IR-08	5.94	5.6	20.6	NA	Y	N	
IR08MWW-6	D	IR-08	4.88	9.6	19.6	NA	Y	N	
IR08P39A	D	IR-08	4.91	5.6	35.6	NA	N	N	
IR09MW31A	D	IR-09	8.42	6.4	11.4	NA	Y	N	
IR09MW35A	D	IR-09	8.71	7.6	18.6	13.5	Y	Y	
IR09MW36A	D	IR-09	8.87	10.0	20.0	15.0	Y	Y	
IR09MW37A	D	IR-09	9.15	7.6	14.1	12.0	Y	Y	
IR09MW38A	D	IR-09	9.02	7.0	12.0	11.0	Y	Y	
IR09MW39A	D	IR-09	8.18	13.0	23.0	18.0	Y	Y	
IR09MW44A	D	IR-09	8.78	7.0	17.0	12.5	Y[1]	Y[1]	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR09MW45F	D	IR-09	8.46	7.1	17.1	12.5	Y	Y	
IR09MW51F	D	IR-09	8.64	5.7	20.7	14.5	Y	Y	
IR09MW52A	D	IR-09	9.59	4.6	19.6	15.0	Y[1]	Y[1]	
IR09MW54B	D	IR-09	9.26	24.8	28.8	NA	Y	N[1]	
IR09MW55B	D	IR-09	9.07	34.8	43.8	NA	Y	N	
IR09MW61A	D	IR-09	8.49	9.3	19.3	14.5	Y	Y	
IR09MW62A	D	IR-09	8.50	8.8	18.8	14.5	Y	Y	
IR09MW63A	D	IR-09	8.66	9.6	19.6	14.5	Y	Y	
IR09P040A	D	IR-09	9.05	10.0	15.0	12.5	N	Y	
IR09P041A	D	IR-09	8.86	11.4	16.4	NA	N	N	
IR09P042A	D	IR-09	8.91	34.5	39.5	NA	N	N	
IR09P043A	D	IR-09	8.96	9.6	14.6	NA	N	N	
IR09P35AA	D	IR-09	8.75	4.3	24.3	NA	N	N	
IR09P35AB	D	IR-09	8.76	4.4	24.4	NA	N	N	
IR09PPY1	D	IR-09	8.78	6.7	11.7	10.5	N	Y	
IR10MW12A	B	IR-10	9.08	2.3	17.3	NA	N[1]	N[1]	decommissioned
IR10MW13A1	B	IR-10	9.92	3.9	18.9	13.0	Y	Y	
IR10MW13A2	B	IR-10	9.96	24.7	39.7	NA	N	N	
IR10MW14A	B	IR-10	10.23	4.4	19.4	13.5	Y	Y	
IR10MW15A	B	IR-10	9.70	4.6	17.6	NA	N	N	decommissioned
IR10MW28A	B	IR-10	13.57	6.4	16.4	NPI	Y	Y	
IR10MW29A1	B	IR-10	9.15	4.3	14.3	NA	Y	N	
IR10MW29A2	B	IR-10	9.04	48.0	58.0	NA	N	N	
IR10MW31A1	B	IR-10	10.34	6.7	16.7	13.5	Y	Y	
IR10MW31A1D	B	IR-10	9.86	4.3	19.3	NA	N	N	decommissioned
IR10MW31A2	B	IR-10	9.96	24.4	39.4	NA	N	N	decommissioned
IR10MW32A	B	IR-10	9.77	5.7	20.7	NA	Y	N	
IR10MW33A	B	IR-10	10.17	4.3	14.3	10.5	Y	Y	
IR10MW59A	B	IR-10	13.79	8.9	17.9	14.5	Y	Y	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR10MW60A	B	IR-10	10.24	11.0	21.0	NA	N	N	
IR10MW61A	B	IR-10	10.05	10.5	20.5	15.5	Y	Y	
IR10MW62A	B	IR-10	9.53	10.6	20.6	15.5	N	Y	
IR10MW63A	B	IR-10	9.62	10.0	20.0	NA	N	N	
IR10MW64A	B	IR-10	9.55	10.9	20.9	NA	N	N	
IR10MW65A	B	IR-10	13.62	15.0	25.0	NA	N	N	
IR10MW66A	B	IR-10	13.67	15.0	25.0	NA	N	N	
IR10MW67A	B	IR-10	14.04	14.5	24.5	NA	N	N	
IR10MW68A	B	IR-10	13.84	14.5	24.5	NA	N	N	
IR10MW69A	B	IR-10	13.91	15.0	25.0	NA	N	N	
IR10MW70A	B	IR-10	14.15	14.0	24.0	NA	N	N	
IR10MW71A	B	IR-10	13.87	13.9	23.9	19.0	N	Y	
IR10MW72A	B	IR-10	14.12	14.3	24.3	NA	N	N	
IR10MW73A	B	IR-10	13.46	15.0	25.0	NA	N	N	
IR10MW74A	B	IR-10	13.77	31.6	36.6	NA	N	N	
IR10MW76A	B	IR-10	13.83	9.6	19.6	15.0	N	Y	
IR10MW77A	B	IR-10	13.68	15.0	25.0	NA	N	N	
IR10MW78A	B	IR-10	13.76	14.5	24.7	NA	N	N	
IR10MW79A	B	IR-10	10.11	11.0	21.0	16.0	Y	Y	
IR10MW80A	B	IR-10	9.67	10.1	20.1	15.0	Y	Y	
IR10MW81A	B	IR-10	9.88	7.1	17.1	12.0	Y[1]	Y[1]	
IR10MW82A	B	IR-10	9.59	2.8	17.8	12.0	Y[1]	Y[1]	
IR10P13A	B	IR-10	9.83	4.4	19.4	NA	N	N	
IR10P13AA	B	IR-10	9.99	4.9	19.9	NA	N	N	
IR10P15A	B	IR-10	9.06	4.3	14.3	NA	N	N	decommissioned
IR11MW25A	E	IR-11	11.40	4.9	10.9	NPI	Y	Y	
IR11MW26A	E	IR-11	9.33	5.7	9.7	NA	Y	N	
IR11MW27A	E	IR-11	9.88	6.0	11.0	10.5	Y	Y	
IR12MW11A	E-2	ILA	11.68	6.3	19.3	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR12MW12A	E	ILA	8.40	3.3	16.3	NA	Y	N	
IR12MW13A	E	IR-12	12.52	6.8	21.8	17.0	Y	Y	
IR12MW14A	E	IR-12	9.23	4.3	19.3	16.5	Y	Y	
IR12MW15A	E	IR-12	7.28	4.2	19.2	NA	Y	N	
IR12MW16A	E	IR-12	8.57	5.3	15.3	NA	Y	N	
IR12MW17A	E	ILA	12.46	6.6	16.6	NPI	Y	Y	
IR12MW18A	E	IR-12	12.37	11.7	21.7	NA	N	N	
IR12MW19A	E	ILA	13.02	8.1	23.1	NA	N	N	
IR12MW20A	E	IR-12	12.27	8.0	23.0	NA	Y	N	
IR12MW21A	E	IR-12	10.42	7.2	22.2	NPI	Y	Y	
IR12P12AA	E	ILA	9.81	5.0	20.0	NA	N	N	
IR12P12AB	E	ILA	10.09	5.0	20.0	NA	N	N	
IR12P14AA	E	IR-12	10.68	5.0	25.0	NA	N	N	
IR12P14AB	E	IR-12	10.43	6.3	26.3	NA	N	N	
IR13MW10A	E	IR-13	3.56	3.1	17.1	NA	N	N	
IR13MW11A	E	IR-13	4.84	3.9	8.9	NA	N	N	
IR13MW12A	E	IR-13	4.12	4.4	17.4	NA	Y	N	
IR13MWB5A-W	E	IR-13	5.93	2.7	12.7	NA	Y	N	
IR13P12AA	E	IR-13	4.49	7.8	17.8	NA	N	N	
IR13P12AB	E	IR-13	4.53	4.8	19.8	NA	N	N	
IR14MW09A	E	IR-14	9.93	6.6	14.6	NA	Y	N	
IR14MW10A	E	ORPA	8.89	6.7	16.7	NA	Y	N	
IR14MW12A	E	IR-14	8.52	6.8	18.3	NA	Y	N	
IR14MW13A	E	IR-14	9.75	6.9	21.9	NA	N	N	
IR15MW06A	E	IR-15	11.11	7.9	20.9	16.0	Y	Y	
IR15MW07A	E	IR-15	11.18	6.8	19.8	NA	Y	N	
IR15MW08A	E	IR-15	11.70	7.0	22.0	NA	N	N	
IR15MW09F	E	IR-15	11.48	19.8	29.8	NA	N	N	
IR15MW10F	E	IR-15	10.98	20.4	30.4	25.5	Y	Y	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR15P08AA	E	IR-15	11.65	6.5	21.5	NA	N	N	
IR15P08AB	E	IR-15	11.41	4.4	19.4	NA	N	N	
IR15P08B	E	IR-15	11.11	41.3	51.3	NA	N	N	
IR17MW11A	D	IR-17	7.85	3.6	16.6	NA	Y	N	
IR17MW12A	D	IR-17	7.72	3.7	16.5	NA	Y	N	
IR17MW13A	D	IR-17	6.98	3.6	16.6	NA	Y	N	
IR17P12AA	D	IR-17	9.59	6.2	21.2	NA	N	N	
IR17P12AB	D	IR-17	9.82	6.3	21.3	NA	N	N	
IR18MW100B	B	IR-18	17.94	39.7	44.7	NA	Y	N	
IR18MW101B	B	IR-18	18.89	36.9	41.9	NA	Y	N	
IR18MW200A	NNP	IR-18	26.96	19.6	34.6	NA	Y	N	
IR18MW21A	B	IR-18	17.56	9.0	19.0	17.0	Y	Y	
IR18MW21AD	B	IR-18	17.11	11.4	26.4	NA	N	N	decommissioned
IR18MW22A	B	IR-18	18.11	11.3	26.3	NA	N	N	decommissioned
IR18MW91A	NNP	IR-18	18.75	14.7	24.7	NA	Y	N	
IR18MW92A	B	IR-18	20.70	16.8	26.8	NA	Y	N	
IR18P21A1	B	IR-18	17.52	11.8	26.8	NA	N	N	decommissioned
IR18P21A2	B	IR-18	17.12	11.3	26.8	NA	N	N	decommissioned
IR20MW01A	B	IR-20	8.31	2.9	16.9	NA	N	N	decommissioned
IR20MW06A	B	IR-20	9.85	7.5	22.5	NA	N	N	decommissioned
IR20MW11A	B	IR-20	10.52	5.6	18.6	NA	N	N	decommissioned
IR20MW17A	B	IR-20	10.51	6.7	21.7	NA	Y	N	
IR22MW07A	D	IR-22	7.74	6.4	21.4	NA	Y	N	
IR22MW08A	D	IR-22	8.77	5.3	20.3	NA	Y	N	
IR22MW15A	D	IR-22	10.83	7.0	22.0	NA	Y	N	
IR22MW16A	D	IR-22	7.86	6.6	21.6	14.3	Y	Y	
IR22MW20A	D	IR-22	7.84	5.5	20.5	13.8	Y	Y	
IR22P15A1	D	IR-22	10.75	8.8	26.3	NA	N	N	
IR22P15A2	D	IR-22	11.00	8.0	23.0	NA	N	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR23MW14A	B	IR-23	9.61	5.8	20.8	NA	N	N	decommissioned
IR24MW04A	B	IR-24	11.16	8.0	18.0	NA	N	N	decommissioned
IR24MW05A	B	IR-24	10.42	6.9	21.9	NA	N	N	
IR24MW06A	B	IR-24	10.25	4.7	19.7	NA	Y	N	
IR24MW07A	B	IR-24	9.92	4.8	19.8	NA	N	N	
IR25EW01A	C	RU-C5	10.81	6.0	16.0	NA	Y	N	
IR25IW02A	C	RU-C5	10.73	11.0	15.3	NA	N	N	
IR25MW11A	C	RU-C5	10.45	4.4	19.4	NA	Y	N	
IR25MW15A1	C	RU-C5	7.84	3.7	13.7	NA	N	N	decommissioned
IR25MW15A2	C	RU-C5	7.38	20.2	30.2	NA	N	N	decommissioned
IR25MW15F	C	RU-C5	10.50	36.4	46.4	NA	N	N	
IR25MW16A	C	RU-C5	11.02	5.5	20.5	15.0	Y	Y	
IR25MW17A	C+	RU-C5	10.31	4.4	19.4	13.5	Y	Y	
IR25MW18A	C	RU-C5	10.46	10.7	15.7	NA	N[1]	N	decommissioned
IR25MW19A	C	RU-C5	10.51	10.8	15.8	NA	N	N	decommissioned
IR25MW20A	C	RU-C5	10.48	7.7	12.7	NA	N[1]	N	decommissioned
IR25MW22A	C	RU-C5	11.19	5.7	10.7	NA	N	N	decommissioned
IR25MW35A	C	NI	NI	NI	NI	NA	N[1]	N	Well not installed
IR25MW37A	C+	RU-C5	10.07	6.9	15.9	11.5	Y	Y	
IR25MW37B	C	RU-C5	10.21	19.8	22.8	NA	Y	N	
IR25MW38A	C	NI	NI	NI	NI	NA	N[1]	N	Well not installed
IR25MW38B	C	RU-C5	10.44	29.7	33.7	NA	Y	N	
IR25MW39A	C	RU-C5	11.21	6.7	13.7	NA	Y	N	
IR25MW39B	C	RU-C5	11.25	18.8	24.8	NA	Y	N	
IR25MW40A	C	RU-C5	9.72	5.0	15.0	11.0	N	Y	
IR25MW41A	C	RU-C5	10.08	21.1	26.1	NA	N	N[1]	decommissioned
IR25MW42B	C	RU-C5	10.01	24.3	27.8	NA	Y	N	decommissioned
IR25MW50A	C	IR-25	10.02	4.5	11.5	NA	Y	N	
IR25MW51A	C	RU-C5	10.47	19.9	29.9	NA	N	N	decommissioned

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR25MW52A	C	RU-C5	10.06	4.8	13.7	NA	N	N[1]	decommissioned
IR25MW53A	C	RU-C5	11.07	11.0	15.5	NA	Y	N	
IR25MW54A	C	RU-C5	11.12	11.0	15.3	NA	Y	N	
IR25MW55A	C	RU-C5	10.39	7.5	16.8	NA	Y	N	
IR25MW56A	C	IR-25	11.10	25.0	29.3	NA	N	N	
IR25MW57A	C	IR-25	9.21	11.0	15.3	NA	N	N	
IR25MW60A1	C	RU-C5	9.57	9.8	19.8	15.0	Y	Y	
IR25MW60A2	C	RU-C5	9.48	29.6	39.6	NA	N[1]	N[1]	decommissioned
IR25MW61A1	B+	RU-C5	9.56	17.9	27.9	23.0	Y	Y	
IR25MW61A2	B+	RU-C5	9.67	27.9	32.9	30.5	Y	Y	
IR25MW62F	C	NI	NI	NI	NI	NA	N[1]	N	Well not installed
IR25MW63A2	C	NI	NI	NI	NI	NA	N[1]	N	Well not installed
IR25MW64A2	C	NI	NI	NI	NI	NA	N[1]	N	Well not installed
IR25MW900B	C	RU-C5	11.02	18.6	27.6	NA	Y	N	
IR25MW901B	C	RU-C5	10.98	18.6	27.6	NA	Y	N	
IR25MW902B	C	RU-C5	11.02	17.6	27.6	NA	Y	N	
IR25MW903B	C	RU-C5	10.48	23.7	28.7	NA	N	N	decommissioned
IR25MW904B	C	RU-C5	10.43	21.7	27.2	NA	N	N	
IR25MW905B	C	RU-C5	7.63	10.2	17.2	NA	N	N	decommissioned
IR26MW36A	B	IR-26	8.28	6.2	18.2	NA	N	N	decommissioned
IR26MW40A	B	IR-26	9.89	5.4	25.4	NA	Y	N	
IR26MW41A	B	IR-26	10.15	5.6	20.6	13.1	Y	Y	
IR26MW42A	B	IR-26	8.18	5.4	20.4	NA	N	N	decommissioned
IR26MW43A	B	IR-26	7.09	5.3	15.3	NA	Y	N	
IR26MW44A	B	IR-26	8.25	5.4	12.4	NA	Y	N	
IR26MW45A	B	EE-05	8.28	6.3	16.3	NA	N	N	decommissioned
IR26MW46A	B	EE-05	8.08	7.9	17.9	13.0	Y	Y	
IR26MW47A	B	EE-05	7.75	4.6	14.6	11.4	Y	Y	
IR26MW48A	B	EE-05	8.13	8.8	18.8	13.8	Y	Y	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR26MW49A	B	EE-05	7.99	4.3	14.3	11.4	Y[1]	Y[1]	
IR26MW50A	B	EE-05	7.42	4.0	14.0	10.3	Y[1]	Y[1]	
IR28IW901A	C	IR-28	8.71	9.7	14.7	NA	N	N	
IR28IW902A	C	RU-C1	8.62	9.6	19.6	NA	N	N	
IR28IW903A	C	IR-28	8.49	8.9	18.9	NA	N	N	
IR28IW938F	C	RU-C4	9.21	10.1	20.1	NA	N	N	
IR28IW939F	C	RU-C4	9.09	10.2	20.2	NA	N	N	
IR28IW940F	C	IR-28	9.02	10.0	20.0	NA	N	N	
IR28MW122A	C	RU-C1	7.48	6.1	21.1	14.7	Y	Y	
IR28MW123A	C	RU-C1	8.09	5.7	20.7	NA	Y	N	
IR28MW124A	C	RU-C1	7.14	4.6	20.1	NA	N	N	decommissioned
IR28MW124A-R1	C	IR-28	7.86	5.7	20.7	NA	N	N	
IR28MW125A	C	RU-C1	7.74	4.7	16.7	11.5	Y	Y	
IR28MW126A	C	RU-C1	7.76	4.8	20.3	NA	Y	N	
IR28MW127A	C	RU-C1	7.63	5.0	20.5	NA	Y	N	
IR28MW128A	C	RU-C1	8.11	4.8	16.8	NA	N	N	
IR28MW129A	C	RU-C1	8.83	5.4	20.9	NA	N	N	
IR28MW136A	C	RU-C1	7.55	4.3	14.8	10.5	Y	Y	
IR28MW140F	C	RU-C1	7.66	28.5	44.0	36.3	Y	Y	
IR28MW149A	C	RU-C1	8.92	5.3	20.8	NA	N	N	decommissioned
IR28MW149A-R1	C	IR-28	9.18	5.6	21.1	NA	N	N	
IR28MW150A	C	RU-C1	7.87	6.1	21.6	15.0	Y	Y	
IR28MW151A	C	RU-C1	8.57	5.3	20.8	14.0	Y	Y	
IR28MW155A	C	RU-C1	8.57	6.1	21.6	14.5	Y	Y	
IR28MW169A	C	RU-C1	9.69	5.9	21.4	14.5	Y	Y	
IR28MW170A	C	RU-C1	8.76	5.1	20.2	NA	Y	N	
IR28MW171A	C	RU-C1	6.67	5.9	21.4	14.0	Y	Y	
IR28MW171B	C	RU-C1	7.19	50.0	60.0	55.0	Y	Y	
IR28MW172F	C	RU-C2	8.57	56.0	66.0	61.0	Y	Y	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR28MW173B	C	RU-C1	8.06	48.2	58.2	53.0	Y	Y	
IR28MW188F	C	IR-28	9.64	8.1	21.6	15.0	Y	Y	
IR28MW189F	C	RU-C2	8.87	7.2	17.2	12.0	Y	Y	
IR28MW190F	C	RU-C2	10.06	13.0	16.3	14.5	Y	Y	
IR28MW200A	C	RU-C4	8.28	5.0	15.5	11.5	Y	Y	
IR28MW201F	C	RU-C4	8.04	24.3	34.3	29.5	Y	Y	
IR28MW211F	C	RU-C4	8.90	5.3	15.8	11.5	N	Y	
IR28MW216F	C	RU-C2	8.38	17.4	27.9	22.5	Y	Y	
IR28MW217A	C	RU-C2	8.98	6.0	20.0	13.5	Y	Y	
IR28MW221A	C	RU-C2	9.56	9.7	19.7	14.5	Y	Y	
IR28MW221B	C	RU-C2	9.58	33.2	43.2	38.0	Y	Y	
IR28MW255F	C	RU-C1	7.83	39.5	55.0	47.3	Y	Y	
IR28MW268A	C	RU-C1	7.90	5.5	20.5	13.3	Y	Y	
IR28MW269A	C	RU-C1	7.84	3.0	18.0	NA	N	N	decommissioned
IR28MW270A	C	RU-C1	7.61	5.3	20.3	13.7	N	Y	
IR28MW271A	C	IR-28	7.06	5.3	20.3	NA	Y	N	
IR28MW272A	C	RU-C4	7.85	5.1	10.1	8.5	Y	Y	
IR28MW272F	C	RU-C4	8.19	49.9	59.9	55.0	Y	Y	
IR28MW273F	C	RU-C4	9.01	5.4	20.4	NA	N	N	decommissioned
IR28MW275F	C	RU-C4	8.62	6.6	11.6	NA	N	N	
IR28MW286A	C	RU-C2	9.81	5.6	10.6	NA	Y	N	
IR28MW287A	C	RU-C2	9.31	4.9	9.9	8.5	Y	Y	
IR28MW290A	C	IR-28	8.14	5.6	20.6	NA	N[1]	N	decommissioned
IR28MW293A	C	IR-28	7.50	5.2	20.2	NA	N	N	
IR28MW294A	C	IR-28	7.78	5.4	20.4	13.5	N	Y	
IR28MW295A	C	IR-28	7.62	5.3	20.3	NA	N	N	
IR28MW297A	C	IR-28	7.68	5.3	20.3	NA	Y	N	
IR28MW298A	C	RU-C4	8.04	4.2	9.2	8.0	Y	Y	
IR28MW299B	C	RU-C2	9.60	5.8	20.8	14.0	Y	Y	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR28MW300F	C	RU-C2	9.67	5.8	20.8	14.0	N	Y	
IR28MW308A	C	RU-C1	7.63	5.4	15.4	10.5	Y	Y	
IR28MW309B	C	RU-C1	9.06	36.6	51.6	44.0	Y	Y	
IR28MW310F	C	RU-C4	7.62	25.3	35.3	NA	Y	N	
IR28MW311A	C	RU-C4	8.02	3.7	18.7	NPI	Y	Y	
IR28MW311A-R1	C	RU-C4	7.90	2.3	17.3	11.5	Y	N	
IR28MW312F	C	RU-C4	8.45	8.7	18.7	13.5	N	Y	
IR28MW313F	C	IR-28	12.17	12.4	27.4	NA	Y	N	
IR28MW314B	C	RU-C1	8.68	19.7	24.7	NA	Y	N	
IR28MW315A	C	RU-C4	8.84	4.1	9.1	8.0	Y	Y	
IR28MW315B	C	RU-C4	9.03	22.2	32.2	27.0	Y	Y	
IR28MW315F	C	RU-C4	8.97	65.4	75.4	70.5	Y	Y	
IR28MW324A	C	RU-C1	8.79	7.8	12.8	NA	N[1]	N	decommissioned
IR28MW325A	C	RU-C1	8.83	7.8	12.8	NA	N	N	
IR28MW326A	C	RU-C1	8.75	7.7	12.7	NA	N[1]	N	decommissioned
IR28MW327A	C	RU-C1	8.73	7.7	12.7	NA	N	N	
IR28MW328A	C	RU-C1	8.04	7.7	12.7	NA	N	N	
IR28MW329A	C	RU-C1	7.78	7.6	12.6	NA	N	N	
IR28MW330A	C	RU-C1	8.78	7.8	12.8	NA	N	N	
IR28MW331A	C	RU-C1	7.97	7.6	12.6	NA	N	N	
IR28MW333A	C	RU-C1	8.71	7.7	12.7	NA	N[1]	N	decommissioned
IR28MW334A	C	RU-C1	8.78	7.8	12.8	NA	Y	N	
IR28MW335A	C	RU-C1	8.87	7.8	12.8	NA	N	N	
IR28MW336A	C	RU-C1	8.55	7.6	12.6	NA	N	N	
IR28MW337A	C	RU-C1	8.77	7.7	12.7	NA	N	N	
IR28MW338A	C	RU-C1	8.83	7.8	12.8	NA	Y	N	
IR28MW339A	C	RU-C1	8.47	7.7	12.7	NA	Y	N	
IR28MW340A	C	RU-C1	8.65	7.8	12.8	NA	Y	N	
IR28MW341F	C	RU-C4	9.20	13.3	16.8	NA	N	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR28MW342F	C	RU-C4	8.86	7.6	14.6	NA	Y	N	
IR28MW34A	C	NI	NI	NI	NI	NA	N[1]	N	Well not installed
IR28MW350F	C	RU-C4	9.83	20.5	29.8	25.0	Y	Y	
IR28MW351F	C	RU-C4	9.00	50.9	58.9	NA	Y	N	
IR28MW352A	C	RU-C4	8.05	7.4	11.7	9.5	Y	Y	
IR28MW353A	C	RU-C1	8.19	5.9	19.9	13.5	Y	Y	
IR28MW353B	C	RU-C1	7.33	42.0	52.0	47.0	Y	Y	
IR28MW354A	C	RU-C1	8.32	6.0	15.0	NA	N	N	
IR28MW354B	C	IR-28	8.19	25.6	30.6	NA	Y	N	
IR28MW355F	C	RU-C4	9.03	10.2	19.3	14.5	N	Y	
IR28MW356F	C	RU-C4	9.00	10.3	19.5	NA	N	N	
IR28MW357F	C	RU-C4	8.62	10.1	19.2	NA	N	N	
IR28MW358F	C	RU-C4	8.73	10.2	19.4	NA	N	N	
IR28MW359F	C	RU-C4	8.64	10.1	19.2	NA	N	N	
IR28MW360F	C	RU-C4	8.57	10.0	19.1	NA	N	N	
IR28MW361F	C	RU-C4	8.80	10.1	19.3	NA	N	N	
IR28MW362F	C	RU-C4	9.08	9.8	19.8	NA	N	N	
IR28MW393F	C	RU-C4	7.33	55.6	58.4	NA	N	N	
IR28MW394A	C	IR-28	9.06	5.0	11.0	9.0	Y	Y	
IR28MW394B	C	IR-28	9.02	44.5	54.0	49.0	Y	Y	
IR28MW395F	C	RU-C2	9.12	47.3	51.3	49.5	Y	Y	
IR28MW396A	C	RU-C2	8.99	4.3	10.8	9.0	Y	Y	
IR28MW396B	C	RU-C2	9.09	32.8	42.3	37.5	Y	Y	
IR28MW397A	C	RU-C2	9.13	2.6	7.6	NA	Y	N	
IR28MW397B	C	RU-C2	9.37	33.7	37.2	35.5	Y	Y	
IR28MW398A	C	RU-C2	8.94	5.5	9.5	8.5	Y	Y	
IR28MW398B	C	RU-C2	8.92	39.2	43.7	41.5	Y	Y	
IR28MW399B	C	RU-C1	7.82	36.4	40.4	38.5	Y	Y	
IR28MW400B	C	RU-C1	8.88	24.8	27.8	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR28MW401B	C	RU-C1	8.58	56.8	60.6	NA	Y	N	
IR28MW402F	C	RU-C4	7.45	40.3	42.3	NA	N	N	
IR28MW403A	C	RU-C4	8.82	14.5	24.5	NA	N	N	
IR28MW404A	C	RU-C4	8.73	15.0	25.0	NA	N	N	
IR28MW405A	C	RU-C4	8.70	15.0	25.0	NA	N	N	
IR28MW406	C	RU-C4	8.59	13.2	23.2	18.0	N	Y	
IR28MW407	C	RU-C4	8.36	13.3	23.3	18.5	N	Y	
IR28MW408A	C	RU-C4	8.18	53.5	58.5	NA	N	N	
IR28MW409A	C	RU-C4	8.80	15.0	25.0	NA	N	N	
IR28MW410A	C	IR-28	9.38	14.5	19.5	NA	N	N	
IR28MW411A	C	IR-28	8.47	17.5	22.5	NA	N	N	
IR28MW412A	C	IR-28	7.50	7.0	12.0	NA	N	N	
IR28MW413B	C	IR-28	9.99	15.0	20.0	NA	N	N	
IR28MW414B	C	IR-28	8.95	20.0	30.0	NA	N	N	
IR28MW415F	C	IR-28	8.52	15.5	25.5	NA	N	N	
IR28MW909A	C	RU-C2	8.89	6.7	15.7	NA	N	N	
IR28MW910A	C	RU-C2	8.93	18.8	24.8	NA	Y	N	
IR28MW911A	C	RU-C2	8.94	6.8	14.8	NA	N	N	
IR28MW912A	C	RU-C2	8.85	17.6	24.6	NA	N	N	
IR28MW913A	C	RU-C2	8.99	17.7	19.7	NA	N	N	
IR28MW914A	C	RU-C2	9.45	9.8	16.8	NA	Y	N	
IR28MW916A	C	RU-C1	8.80	9.6	18.6	NA	N	N	
IR28MW918A	C	RU-C1	8.81	23.7	32.2	NA	N	N	
IR28MW919A	C	RU-C1	8.63	9.6	19.6	NA	N	N	
IR28MW920A	C	RU-C1	8.62	9.6	17.4	NA	N	N	
IR28MW921A	C	RU-C1	8.67	9.7	19.7	NA	N	N	
IR28MW930A	C	RU-C1	8.70	9.7	18.7	NA	N	N	
IR28MW932F	C	RU-C4	8.87	26.6	29.6	NA	Y	N	
IR28MW933F	C	RU-C4	9.02	9.1	29.6	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR28MW934F	C	RU-C4	9.05	9.2	29.7	NA	Y	N	
IR28MW935F	C	RU-C4	9.06	9.6	19.6	NA	N	N	
IR28MW936F	C	RU-C4	9.19	9.7	19.7	NA	N	N	
IR28MW937F	C	RU-C4	8.96	9.5	19.5	NA	N	N	
IR28P155AA	C	RU-C1	8.34	5.6	20.6	NA	N	N	
IR28P155AB	C	RU-C1	9.13	5.5	20.5	NA	N	N	
IR28P50AA	C	RU-C1	8.16	4.3	17.3	NA	N	N	
IR28P50AB	C	RU-C1	8.63	4.6	19.6	NA	N	N	
IR29MW48A	C	IR-29	8.04	3.8	9.3	NA	Y	N	
IR29MW56F	C	IR-29	8.15	5.5	14.5	NPI	N	Y	
IR29MW57A	C	IR-29	7.67	4.5	10.5	NA	N[1]	N	decommissioned
IR29MW58F	C	IR-29	8.54	14.1	18.1	16.0	Y	Y	
IR29MW59F	C	IR-29	8.21	14.7	24.7	NPI	N	Y	
IR29MW72F	C	IR-29	9.27	5.3	25.3	15.5	N	Y	
IR29MW84A	C	IR-29	8.09	5.3	10.3	NA	Y	N	
IR29MW85F	C	IR-29	9.66	5.6	20.6	13.0	Y	Y	
IR30MW01F	C	IR-30	8.92	5.0	18.9	NA	Y	N	
IR30MW02F	C	IR-30	9.76	5.3	19.2	NA	N	N	
IR30MW03F	C	IR-30	8.89	5.2	19.1	NA	Y	N	
IR30MW04F	C	IR-30	8.96	5.3	19.3	12.5	Y	Y	
IR33MW116A	D	IR-33	8.38	5.7	20.7	NA	Y	N	
IR33MW120B	D	IR-33	9.45	66.9	70.9	NA	Y	N	
IR33MW121B	D	IR-33	7.20	68.6	72.6	NA	Y	N	
IR33MW61A	D	IR-33	12.26	6.0	20.5	NA	N[1]	N[1]	decommissioned
IR33MW62A	D	IR-33	8.21	5.0	15.0	NA	Y	N	decommissioned
IR33MW63A	D	IR-33	7.80	5.4	20.4	NA	Y	N	
IR33MW64A	D	IR-33	9.30	7.0	13.0	NA	Y	N	
IR33MW65A	D	IR-33	8.32	5.5	15.5	NA	Y	N	
IR33MW66A	D	IR-33	8.91	5.3	20.3	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR34MW01A	D	IR-34	8.62	5.1	15.1	NA	Y	N	
IR34MW02A	D	IR-34	8.03	5.5	20.5	NA	Y	N	
IR34MW35A	D	IR-34	8.15	5.1	20.1	NA	N	N	
IR34MW36A	D	IR-34	8.80	8.4	17.4	13.0	Y[1]	Y[1]	
IR34MW36B	D	IR-34	9.23	23.8	32.8	NA	Y	N	
IR34MW37A	D	IR-34	8.78	5.7	19.7	NA	Y	N	
IR34MW37B	D	IR-34	8.60	29.7	33.7	NA	Y	N	
IR35MW01A	D	IR-35	8.85	5.1	20.1	NA	Y	N	
IR36MW09A	E	IR-36	5.00	5.1	20.1	13.0	Y[1]	Y[1]	
IR36MW11A	E	NBFA	8.55	5.5	20.5	15.0	Y	Y	
IR36MW120B	E	IR-36	7.05	57.2	72.2	NPI	Y	Y	
IR36MW121A	E	IR-36	6.96	14.4	29.4	NPI	Y	Y	
IR36MW122A	E	IR-36	7.64	17.2	32.2	24.5	Y	Y	
IR36MW123B	E	IR-36	7.55	49.3	64.3	57.0	Y	Y	
IR36MW125A	E	IR-36	6.55	3.0	8.0	7.5	Y	Y	
IR36MW126A	E	IR-36	5.16	3.3	8.3	NA	N[1]	N[1]	
IR36MW127A	E	IR-36	6.45	5.6	25.6	16.5	Y	Y	
IR36MW128A	E	IR-36	8.01	5.7	20.7	15.0	Y	Y	
IR36MW129B	E	IR-36	7.80	52.0	67.0	59.5	Y	Y	
IR36MW12A	E	NBFA	7.18	5.1	20.1	14.0	Y	Y	
IR36MW135A	E	NBFA	7.85	5.4	25.4	NA	Y	N	
IR36MW137A	E	IR-36	7.76	4.9	6.4	NA	Y	N	
IR36MW139A	E	IR-36	7.10	3.8	18.8	NA	N	N	
IR36MW13A	E	IR-36	8.96	8.2	13.2	NA	N	N	
IR36MW14A	E	IR-36	5.52	4.9	14.9	10.5	Y[1]	Y[1]	
IR36MW15A	E	IR-36	7.04	5.5	20.5	NA	Y	N	
IR36MW16A	D	IR-36	8.26	5.1	25.1	16.0	Y	Y	
IR36MW17A	E	IR-36	8.36	5.5	20.5	15.0	Y	Y	
IR37MW01A	D	IR-37	7.59	5.4	20.4	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR37MW26B	D	IR-37	8.14	29.8	34.8	NA	Y	N	
IR38MW01A	E	IR-38	4.28	13.1	33.1	NA	Y	N	
IR38MW02A	E	IR-38	2.88	9.6	29.6	NA	Y	N	
IR38MW03A	E	IR-38	4.00	5.4	20.4	NA	Y	N	
IR39MW21A	E	IR-39	7.92	8.0	15.0	NPI	Y	Y	
IR39MW22A	E	IR-39	6.34	4.9	19.9	NA	Y	N	
IR39MW23A	E	IR-39	5.61	4.0	19.0	13.0	Y	Y	
IR39MW24A	E	IR-39	4.80	4.9	14.9	NA	Y	N	
IR39MW33A	E	IR-39	4.31	-0.3	17.7	11.5	Y	Y	
IR39MW35A	E	IR-39	5.56	5.5	25.5	NA	N	N	
IR39MW36A	E	IR-39	4.66	5.6	25.6	15.5	Y	Y	
IR44MW08A	D	IR-44	7.24	4.9	14.9	10.5	Y	Y	
IR46MW37A	B	IR-46	9.58	6.0	21.0	14.0	Y	Y	
IR46MW38A	B	IR-46	9.78	5.4	20.4	NA	Y	N	
IR46MW39A	B	IR-46	9.75	5.6	20.6	NA	Y	N	
IR46MW39A2	B	IR-46	9.32	25.3	30.3	NA	N	N	
IR46MW39A3	B	IR-46	9.47	35.4	40.4	NA	N	N	
IR46MW40A	B	IR-46	9.29	4.7	20.2	NA	N	N	decommissioned
IR46MW40A2	B	IR-46	9.33	25.3	30.3	NA	N	N	decommissioned
IR46MW40A3	B	IR-46	9.28	35.3	40.3	NA	N	N	
IR46MW41A	B	IR-46	9.57	5.3	20.3	NA	Y	N	
IR46MW42A	B	IR-46	9.53	5.3	20.3	NA	N	N	decommissioned
IR46MW43A	B	IR-46	8.98	5.2	20.2	NA	Y	N	
IR46MW46A	B	IR-46	9.61	5.4	20.4	NA	Y	N	
IR46MW47A	B	IR-46	9.69	5.6	20.6	NA	Y	N	
IR46MW48A	B	IR-46	8.89	5.5	20.5	NA	Y	N	
IR46P38AA	B	IR-46	10.68	6.6	31.6	NA	N	N	
IR46P38AB	B	IR-46	10.75	6.2	21.2	NA	N	N	
IR50MW13F	C	IR-50	7.68	5.5	15.5	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR50MW14A	D	IR-50	6.86	5.6	20.9	NA	N	N	
IR50MW15A	D	IR-50	6.60	4.5	19.5	NA	Y	N	
IR55MW01A	D	IR-55	5.14	3.8	13.8	NA	Y	N	
IR55MW02A	D	IR-55	7.27	5.5	20.5	NA	Y	N	
IR55MW04A	D	IR-55	4.80	5.5	20.5	NA	Y	N	
IR56MW39A	E	IR-56	9.84	5.4	20.4	15.0	N	Y	
IR57MW30A	C	IR-57	8.02	5.3	20.3	NA	N	N	
IR58MW24F	C	IR-58	15.48	14.5	25.0	NA	Y	N	
IR58MW25F	C	RU-C2	9.72	16.1	26.6	21.5	Y	Y	
IR58MW26A	C	RU-C2	8.24	6.1	21.6	14.0	Y	Y	
IR58MW31A	C	RU-C2	8.97	3.5	14.0	10.0	Y	Y	
IR58MW31F	C	RU-C2	9.22	54.6	59.1	57.0	Y	Y	
IR58MW32B	C	RU-C2	8.77	9.7	24.7	17.0	Y	Y	
IR58MW33B	C	RU-C2	9.06	16.7	23.7	20.0	Y	Y	
IR58MW34A	C	RU-C2	9.80	14.7	24.7	NA	N	N	
IR58MW35A	C	RU-C2	9.55	4.8	24.8	NA	N	N	
IR59MW01F	A	IR-59	121.36	62.4	81.9	NA	N	N	decommissioned
IR59MW02F	A	IR-59	124.34	45.3	65.3	NA	N	N	decommissioned
IR59MW03F	A	IR-59	124.14	86.4	106.4	NA	N	N	decommissioned
IR59MW04F	A	IR-59	120.37	63.4	83.4	NA	N	N	decommissioned
IR59MW05F	A	IR-59	120.75	47.1	67.1	NA	N	N	decommissioned
IR59MW06F	A	IR-59	31.88	13.8	18.8	NA	N	N	decommissioned
IR60MW04A	B	IR-60	9.34	5.7	20.7	NA	N	N	decommissioned
IR60MW08A	B	IR-60	9.40	5.8	20.8	NA	N[1]	N	decommissioned
IR60MW10A	B	IR-60	9.11	5.3	20.3	NA	N	N	decommissioned
IR61MW04A	B	IR-61	10.35	5.8	20.8	NA	N	N	
IR61MW05A	B	IR-61	10.11	5.4	20.4	14.0	Y	Y	
IR62MW07A	B	IR-62	10.20	6.2	21.2	NA	Y	N	
IR62MW08A	B	IR-62	10.35	5.5	15.5	NA	Y	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
IR64MW05A	C	IR-64	7.83	4.6	9.6	7.7	Y	Y	
IR67MW04A	D	IR-67	8.17	5.4	20.4	NA	Y	N	
IR70MW04A	D	IR-70	7.32	4.1	19.1	13.5	Y	Y	
IR70MW07A	D	IR-70	7.90	3.4	18.4	13.0	N	Y	
IR70MW11A	D	IR-70	6.07	2.7	17.7	NA	Y	N	
IR70MW12A	D	IR-70	8.44	5.5	20.5	NA	Y	N	
IR71MW03A	D	IR-71	8.31	5.2	20.2	14.5	Y	Y	
IR71MW04A	D	IR-71	7.70	9.7	19.7	14.5	Y	Y	
IR71MW12B	D	IR-71	8.23	93.6	102.6	98.0	Y	Y	
IR72MW32A	E	IR-72	10.08	5.3	20.3	NA	Y	N	
IR72MW33A	E	ILA	12.00	5.5	20.5	NA	Y	N	
IR72P33AA	E	ILA	12.07	5.5	20.5	NA	N	N	
IR72P33AB	E	ILA	12.35	5.7	20.7	NA	N	N	
IR73MW04A	E	IR-73	13.48	5.4	20.4	NA	Y	N	
IR74MW01A	E	IR-74	13.16	9.9	14.9	14.0	Y	Y	
IR75MW05B	NNP	ILA	15.57	10.4	20.4	15.5	Y	Y	
IR75P05AA	E	ILA	15.34	10.3	20.3	NA	N	N	
IR75P05AB	E	ILA	15.52	10.6	20.6	NA	N	N	
IR76MW13A	NNP	ILA	19.69	8.0	23.0	19.0	Y	Y	
PA16MW16A	D	IR-16	8.58	4.7	19.7	NA	N	N	
PA16MW17A	D	IR-16	8.45	3.8	16.3	NA	Y	N	
PA16MW18A	D	IR-16	8.37	4.9	19.9	NA	Y	N	
PA18MW08A	NNP	IR-18	24.67	9.6	24.6	NA	Y	N	decommissioned
PA18MW09A	B	IR-18	17.66	9.6	24.6	NA	N	N	
PA24MW01A	B	IR-24	10.12	6.7	26.7	NA	N	N	
PA24MW02A	B	IR-24	9.46	6.0	21.5	NA	N[1]	N	decommissioned
PA24MW03A	B	IR-24	10.09	4.4	14.4	NA	N	N	decommissioned
PA24MW03AD	B	IR-24	9.97	5.4	25.4	NA	N	N	decommissioned
PA28MW50A	C	RU-C1	8.60	4.5	19.5	NA	N	N	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
PA28MW51A	C	RU-C1	8.41	5.6	26.1	NA	Y	N	
PA28MW52A	C	RU-C1	8.58	5.6	20.6	NA	N	N	
PA28P02A	C	IR-28	7.73	5.5	20.5	NA	N	N	
PA28P03A	C	RU-C1	7.71	3.8	17.8	NA	N	N	
PA28P04A	C	RU-C1	8.61	4.6	18.1	12.5	N	Y	
PA32MW04A	D	IR-32	7.05	5.1	25.1	NA	Y	N	
PA33MW36A	D	IR-33	9.24	5.6	20.6	NA	Y	N	
PA33MW37A	D	IR-33	9.27	5.6	20.6	NA	Y	N	
PA35P01A	D	IR-35	8.14	5.5	20.5	NA	N	N	
PA36MW01A	E	IR-36	7.64	5.5	21.0	NPI	Y	Y	
PA36MW02A	E	IR-36	8.02	5.7	21.2	15.5	Y	Y[1]	
PA36MW03A	E	IR-36	9.26	7.5	17.5	NA	N	N	
PA36MW04A	E	IR-36	7.33	5.5	21.0	14.5	Y	Y[1]	
PA36MW05A	E	IR-36	7.40	4.5	24.5	NA	N[1]	N	decommissioned
PA36MW06A	E	IR-36	8.94	5.4	25.4	NA	N	N	
PA36MW07A	E	IR-36	6.80	5.1	20.1	14.0	Y	Y	
PA36MW08A	E	IR-36	7.65	5.3	20.3	NPI	Y	Y	
PA36P04AA	E	IR-36	8.03	5.5	20.5	NA	N	N	
PA36P04AB	E	IR-36	8.47	4.0	19.0	NA	N	N	
PA39MW01A	E	IR-38	4.53	5.4	25.4	NA	Y	N	
PA39MW02A	E	IR-39	6.13	5.2	25.7	NA	Y	N	
PA39MW03A	E	NBFA	10.46	6.6	27.1	NA	N	N	
PA50MW01A	B	IR-24	9.18	5.5	15.7	NA	N[1]	N[1]	decommissioned
PA50MW02A	B	IR-28	7.80	5.4	15.4	NA	Y	N	
PA50MW03A	C	RU-C1	7.03	4.4	14.4	11.0	Y	Y	
PA50MW04A	C	Parcel C	7.56	4.0	12.5	NA	Y	N	
PA50MW05A	E	Parcel E	6.07	4.4	10.9	NA	Y	N	
PA50MW06A	E	Parcel E	7.64	4.5	14.5	NA	Y	N	
PA50MW07A	D	IR-32	8.71	4.3	11.3	10.0	Y	Y	

Table 1-1. Monitoring well construction details.

Well ID	Parcel	Area of Concern	Current Top of Casing (ft MSL)	TOS depth (ft below TOC)	BOS depth (ft below TOC)	Dedicated Pump Intake (ft below TOC)	SAP required DTW?	SAP required sampling?	Comment
PA50MW08A	E	Parcel E	7.48	4.4	12.4	NA	Y	N	
PA50MW09A	E	IR-36	5.00	4.4	14.4	NA	Y	N	
PA50MW10A	E	Parcel E	8.45	4.5	17.5	NA	Y	N	
PA50MW11A	D	Parcel D	7.66	4.4	16.4	13.0	Y	Y[1]	decommissioned
PA50MW12A	D	Parcel D	8.62	5.2	16.7	13.0	Y	Y	
UT02MW15A	B	IR-62	12.57	5.9	20.9	NA	Y	N	
UT02MW16A	B	Parcel B	9.91	3.8	18.8	NA	N	N	decommissioned
UT02MW17A	B	Parcel B	10.12	5.7	15.7	NA	N	N	
UT03MW10A	B	Parcel B	10.60	4.6	14.1	NA	N	N	decommissioned
UT03MW11A	B	IR-23	9.94	4.2	19.2	13.0	Y	Y	
UT03MW12A	B	Parcel B	10.10	5.4	20.4	NA	Y	N	decommissioned
UT03MW16A	B	IR-23	10.45	5.4	20.4	NA	N	N	

Notes:

N[1], Y[1]: Requirement changed per SAP addendum no. 1 dated April 2007

Acronyms/Abbreviations:

- **BOS:** Bottom of screen
- **DTW:** Depth to water
- **ft MSL:** Feet above mean sea level
- **ID:** Identification number
- **NA:** Not applicable (well is not required to be sampled or is decommissioned)
- **NPI:** No dedicated pump installed
- **SAP:** Basewide Groundwater Monitoring Program Sampling and Analysis Plan (Tetra Tech, 2004), and SAP addendum no. 1 (April 2007)
- **TOC:** Top of casing
- **TOS:** Top of screen

Parcel:

- **B+:** Well is physically located in Parcel B, is assigned in the SAP to Parcel C, and is not assigned in the RAMP.
- **C+:** Well is physically located in parcel C, is assigned in the SAP to Parcel C, and is assigned in the RAMP to Parcel B.
- **NNP:** Non-Navy Property, reported by SAP-assigned parcel

Area of Concern:

- **ILA:** Industrial Landfill Area
- **IR:** Installation Restoration
- **ORPA:** Oil Pond Reclamation Area
- **RU:** Remedial Unit

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Table 4-1. Summary of groundwater sampling information (April-June 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotens	SM2520B Salinity
IR01MW02B	NNP	0719H031	5/8/07	1043								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW03A	NNP	0719H030	5/8/07	0932								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW05A	NNP	0719W018	5/8/07	0954								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW09B	E-2	0718J006	5/1/07	0944								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW10A	E-2	0719W019	5/8/07	1334								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW17B	E-2				obstructed							Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW26B	E-2	0719D014	5/7/07	1000								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW31A	E-2	0720A052	5/17/07	1005								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW366A	E-2	0719H035	5/10/07	1044	Insufficient water to complete sample collection. Finished sampling on 5/15/07.							Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW366A	E-2	0720H035	5/15/07	0922	2nd part of sampling at this well.							Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW366B	E-2	0719H036	5/10/07	1351								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW367A	E-2				obstructed							Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW38A	E-2	0718J012	5/2/07	1219								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW403A	NNP	0720H049	5/15/07	1041								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW403B	E-2	0720A047	5/16/07	0914								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW42A	E-2	0718D004	5/2/07	1200								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW48A	E-2	0720J058	5/16/07	1340								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q		Q	
IR01MW53B	E-2	0720J059	5/16/07	1434								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW58A	E-2				damaged															Q	Q		Q		Q	Q						
IR01MW60A	E-2	0721W049	5/21/07	0935								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q		Q	
IR01MW62A	E-2	0720N005	5/15/07	0947								Q						Q		Q						Q	Q		Q			
IR01MW63A	E-2	0720N003	5/15/07	0855								Q						Q		Q						Q			Q			
IR01MW64A	E-2	0721W051	5/21/07	1412								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q		Q	
IR01MWI-6	E-2				damaged							Q						Q		Q				Q		Q			Q			
IR01MWI-7	E-2	0720N012	5/18/07	0945								Q						Q		Q						Q	Q				Q	
IR01MWI-8	E-2	0720N010	5/17/07	1125								Q						Q		Q						Q	Q		Q		Q	
IR01MWLF1A	E-2	0721W050	5/21/07	1157								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MWLF2A	E-2	0720A049	5/16/07	1120								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MWLF4A	E-2				inaccessible, damaged							Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MWLF4B	E-2	0718J011	5/2/07	1032								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR02MW126A	E	0720J051	5/14/07	1425								Q						Q		Q	Q	Q				Q	Q	Q			Q	Q

Table 4-1. Summary of groundwater sampling information (April-June 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotens	SM2520B Salinity
IR02MW147A	E	0720B001	5/17/07	0930								Q						Q		Q						Q		Q		Q	Q	
IR02MW149A	E	0720N007	5/15/07	1220								Q						Q	Q	Q								Q		Q	Q	
IR02MW175A	E	0721J065	5/21/07	1002								Q						Q		Q						Q		Q		Q	Q	
IR02MW179A	E	0720J056	5/16/07	1039								Q						Q		Q								Q		Q	Q	
IR02MW206A2	E				inaccessible, damaged							Q						Q		Q						Q					Q	
IR02MW209A	E	0720J057	5/16/07	1129								Q						Q		Q						Q		Q		Q	Q	
IR02MW301A	E	0720J061	5/18/07	1026								Q						Q		Q			Q				Q	Q		Q	Q	
IR02MWB-1	E	0720N009	5/17/07	0950								Q						Q	Q	Q								Q		Q	Q	
IR02MWB-2	E				obstructed							Q						Q	Q	Q											Q	
IR02MWB-5	E				obstructed							Q						Q		Q				Q								
IR02MWC5-W	E				inaccessible							Q						Q								Q						
IR03MW218A2	E	0719G001	5/10/07	1029								Q						Q	Q	Q	Q	Q		Q		Q	Q					
IR03MW224A	E	0720W046	5/18/07	0945								Q						Q		Q				Q		Q	Q					
IR03MW228B	E	0719G003	5/10/07	1215																						Q						
IR03MW342A	E	0720G016	5/15/07	1104								Q						Q	Q	Q			Q			Q	Q					
IR03MW369A	E				NAPL							Q						Q		Q	Q	Q		Q		Q	Q					
IR03MW370A	E				NAPL							Q						Q		Q	Q	Q	Q	Q		Q	Q					
IR03MW371A	E				NAPL							Q						Q		Q	Q	Q		Q		Q	Q				Q	
IR03MW373B	E	0720A055	5/17/07	1542								Q						Q		Q	Q	Q	Q	Q		Q	Q					
IR04MW13A	E-2	0719W020	5/10/07	0919								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR04MW36A	E-2	0718J007	5/1/07	1107								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR04MW37A	E	0718A004	5/2/07	1422																						Q						
IR05MW85A	E	0718J013	5/2/07	1500								Q								Q						Q	Q					
IR06MW32A	C	0718J009	5/1/07	1510																	Q	Q				Q						
IR06MW35A	C	0718J008	5/1/07	1406																						Q						
IR06MW40A	C	0718J002	4/30/07	1143																						Q						
IR06MW42A	C+	0718A001	5/2/07	1012		Q	Q	Q	Q	Q		Q							Q		Q	Q										
IR06MW47F	C	0718H001	4/30/07	1210																						Q						
IR06MW52F	C	0718J003	4/30/07	1350																						Q						
IR06MW53F	C	0719H042	5/11/07	1334								Q						Q								Q						
IR06MW54F	C	0718H014	5/3/07	1105								Q						Q	Q				Q			Q						
IR06MW55F	C	0718H002	4/30/07	1415																						Q						
IR06MW59A1	C	0718H007	5/1/07	1445																						Q	Q					
IR06MW59A2	C	0718H006	5/1/07	1330																						Q						

Table 4-1. Summary of groundwater sampling information (April-June 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotens	SM2520B Salinity
IR06MW60A	C				inaccessible					Q		Q						Q	Q	Q	Q	Q										
IR07MW19A	B				inaccessible	Q	Q			Q		Q							Q		Q	Q										
IR07MW20A1	B	0720W038	5/16/07	0920		Q	Q			Q		Q							Q		Q	Q										
IR07MW21A1	B	0719J038	5/10/07	1122		Q	Q			Q		Q							Q		Q	Q										
IR07MW23A	B				sentinel well	SA	SA			SA		SA							SA		SA	SA										
IR07MW24A	B	0719J037	5/10/07	1022		Q	Q			Q		Q							Q		Q	Q										
IR07MW25A	B	0719J035	5/10/07	0922		Q	Q			Q		Q							Q		Q	Q										
IR07MW26A	B	0720J047	5/14/07	0920		Q	Q			Q		Q							Q		Q	Q										
IR07MW27A	B				sentinel well	SA	SA	SA	SA	SA		SA							SA		SA	SA										
IR07MW28A	NNP	0720J049	5/14/07	1132		Q	Q	Q	Q	Q		Q							Q		Q	Q										
IR07MWS-2	B	0720J048	5/14/07	1018		Q	Q			Q		Q							Q		Q	Q										
IR07MWS-4	B	0720H045	5/14/07	1034		Q	Q			Q		Q							Q		Q	Q										
IR09MW35A	D	0718W001	5/1/07	1052								Q						Q	Q										Q			
IR09MW36A	D	0719A016	5/7/07	0928								Q						Q	Q										Q			
IR09MW37A	D	0720G020	5/16/07	1034								Q						Q	Q													
IR09MW38A	D	0718H004	5/1/07	0950								Q						Q	Q													
IR09MW39A	D	0718H005	5/1/07	1124								Q						Q	Q													
IR09MW44A	D	0721N016	5/21/07	1212								Q						Q	Q													
IR09MW45F	D	0720A041	5/14/07	0935								Q						Q	Q													
IR09MW51F	D	0718W003	5/1/07	1410								Q						Q	Q							Q						
IR09MW52A	D	0721N017	5/21/07	1312								Q						Q	Q													
IR09MW61A	D	0719A023	5/8/07	0907							Q	Q						Q	Q							Q						Q
IR09MW62A	D	0719H024	5/7/07	0930							Q	Q						Q	Q							Q						Q
IR09MW63A	D	0719A024	5/8/07	1021							Q	Q						Q	Q							Q						Q
IR09P040A	D	0719G002	5/10/07	1112								Q						Q	Q										Q			
IR09PPY1	D	0719H026	5/7/07	1157								Q						Q	Q										Q			
IR10MW13A1	B	0719H038	5/11/07	0856						Q																						
IR10MW14A	B	0719A036	5/11/07	1019						Q																						
IR10MW28A	B				insufficient water					Q		SA						SA	SA	SA	SA	SA										
IR10MW31A1	B	0718H010	5/2/07	1055		Q	Q			Q		Q							Q		Q	Q										
IR10MW33A	B	0719A037	5/11/07	1221						Q																				Q		
IR10MW59A	B	0718A013	5/4/07	1132						Q																						
IR10MW61A	B	0720H046	5/14/07	1212																						Q						
IR10MW62A	B	0720W040	5/16/07	1333																						Q						

Table 4-1. Summary of groundwater sampling information (April-June 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotens	SM2520B Salinity
IR10MW71A	B	0718A012	5/4/07	1011																						Q						
IR10MW76A	B	0718A011	5/4/07	0918																						Q						
IR10MW79A	B	0720W039	5/16/07	1118																						Q						
IR10MW80A	B	0719H039	5/11/07	0956																						Q						
IR10MW81A	B	0721J067	5/21/07	1500								Q						Q	Q							Q						
IR10MW82A	B	0721J066	5/21/07	1327								Q						Q	Q							Q						
IR11MW25A	E				damaged																		Q			Q						
IR11MW27A	E	0720A058	5/18/07	1010																						Q					Q	
IR12MW13A	E	0718D009	5/3/07	1150																						Q						
IR12MW14A	E	0720A054	5/17/07	1416																						Q						
IR12MW17A	E				inaccessible, damaged																Q	Q	Q			Q	Q		Q			
IR12MW21A	E				NAPL							Q						Q								Q	Q					
IR15MW06A	E	0720A050	5/16/07	1515																						Q						
IR15MW10F	E	0720A045	5/15/07	1435																						Q						
IR18MW21A	B	0721W053	5/22/07	1105		Q	Q	Q	Q	Q		Q							Q		Q	Q										
IR22MW16A	D	0719J031	5/8/07	1344								Q						Q													Q	
IR22MW20A	D	0719J033	5/8/07	1432								Q						Q														
IR25MW16A	C	0718A002	5/2/07	1218																				Q		Q	Q					
IR25MW17A	C+	0718W007	5/3/07	1148						Q		SA						SA	SA	SA	SA	SA										
IR25MW37A	C+	0718W005	5/2/07	1045						Q																						
IR25MW40A	C	0719H041	5/11/07	1123																						Q						
IR25MW60A1	C				obstructed						Q													Q		Q	Q					Q
IR25MW61A1	B+	0718D003	5/2/07	1020							Q															Q	Q					Q
IR25MW61A2	B+	0718D001	5/1/07	1425							Q															Q	Q					Q
IR26MW41A	B	0720J055	5/16/07	0933		Q	Q			Q		Q							Q		Q	Q										
IR26MW46A	B	0718A007	5/3/07	1132		Q	Q	Q	Q			Q							Q													
IR26MW47A	B	0719J029	5/8/07	1122		Q	Q	Q	Q			Q							Q													
IR26MW48A	B	0719J027	5/8/07	0943		Q	Q	Q	Q			Q							Q													
IR26MW49A	B	0719J028	5/8/07	1033		Q	Q	Q	Q			Q							Q													
IR26MW50A	B	0719J030	5/8/07	1206		Q	Q	Q	Q			Q							Q													
IR28MW122A	C	0719J041	5/10/07	1532																						Q					Q	
IR28MW125A	C	0719J023	5/7/07	1208								Q						Q	Q							Q						
IR28MW136A	C	0718D011	5/4/07	1230								Q						Q								Q	Q					
IR28MW140F	C	0719J022	5/7/07	1059																						Q						

Table 4-1. Summary of groundwater sampling information (April-June 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotens	SM2520B Salinity
IR28MW150A	C	0718W012	5/4/07	1050																						Q						
IR28MW151A	C	0720W029	5/14/07	1003								Q						Q	Q	Q						Q						
IR28MW155A	C	0718H011	5/2/07	1332																	Q	Q		Q		Q	Q					
IR28MW169A	C	0718H012	5/2/07	1450																						Q						
IR28MW171A	C	0718D006	5/2/07	1540																			Q	Q		Q						
IR28MW171B	C	0718D005	5/2/07	1430							Q															Q	Q					Q
IR28MW172F	C	0719G009	5/11/07	1152																	Q	Q				Q						
IR28MW173B	C	0719A018	5/7/07	1218																						Q						
IR28MW188F	C	0720H057	5/17/07	1128																	Q	Q				Q						
IR28MW189F	C	0720H056	5/17/07	1029																						Q						
IR28MW190F	C	0719H027	5/7/07	1522																						Q						
IR28MW200A	C	0719A034	5/10/07	1507																						Q						
IR28MW201F	C	0719A032	5/10/07	1409																						Q						
IR28MW211F	C	0720W034	5/15/07	0929								Q								Q						Q						
IR28MW216F	C	0718H015	5/3/07	1340																						Q						
IR28MW217A	C	0719G008	5/11/07	1039																						Q						
IR28MW221A	C	0718A008	5/3/07	1343							Q															Q						Q
IR28MW221B	C	0718A009	5/3/07	1434							Q															Q						Q
IR28MW255F	C	0719J045	5/11/07	1426																						Q						
IR28MW268A	C	0719J044	5/11/07	1336																						Q						
IR28MW270A	C	0720J050	5/14/07	1326																						Q						
IR28MW272A	C	0720G018	5/15/07	1545																						Q						
IR28MW272F	C	0720G017	5/15/07	1421							Q															Q						Q
IR28MW287A	C	0720H058	5/17/07	1407																						Q						
IR28MW294A	C	0719J025	5/7/07	1502																						Q					Q	
IR28MW298A	C	0719W015	5/7/07	1359																						Q						
IR28MW299B	C	0718A014	5/4/07	1358																						Q						
IR28MW300F	C	0718J015	5/4/07	0914																						Q	Q					
IR28MW308A	C	0719W021	5/10/07	1413																						Q						
IR28MW309B	C	0720W030	5/14/07	1130																						Q						
IR28MW311A	C	0719A020	5/7/07	1445																						Q						
IR28MW312F	C	0719W016	5/7/07	1533																						Q	Q					
IR28MW315A	C	0719A025	5/8/07	1234							Q															Q						Q
IR28MW315B	C	0719A026	5/8/07	1327							Q															Q						Q

Table 4-1. Summary of groundwater sampling information (April-June 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotens	SM2520B Salinity
IR28MW315F	C	0719A027	5/8/07	1413							Q															Q							Q
IR28MW350F	C	0718H016	5/3/07	1445																						Q							
IR28MW352A	C	0719W014	5/7/07	1134																						Q							
IR28MW353A	C	0718H020	5/4/07	1320																						Q							
IR28MW353B	C	0718H022	5/4/07	1410							Q															Q	Q						Q
IR28MW355F	C	0720W035	5/15/07	1130																						Q							
IR28MW394A	C	0720H047	5/14/07	1522																	Q	Q				Q							
IR28MW394B	C	0719H033	5/8/07	1446																	Q	Q				Q							
IR28MW395F	C	0719G007	5/11/07	0927																						Q							
IR28MW396A	C	0719D015	5/7/07	1150																						Q							
IR28MW396B	C	0719D016	5/7/07	1425																						Q							
IR28MW397B	C	0719H032	5/8/07	1332																						Q	Q						
IR28MW398A	C	0718H018	5/4/07	1025																						Q							
IR28MW398B	C	0718H019	5/4/07	1120																						Q							
IR28MW399B	C	0719A019	5/7/07	1319																						Q							
IR28MW406	C	0718W009	5/3/07	1552																						Q							
IR28MW407	C	0718W008	5/3/07	1425																						Q							
IR29MW56F	C	0718J016	5/4/07	1124																	Q	Q				Q	Q					Q	
IR29MW58F	C	0720A044	5/15/07	1119																	Q	Q	Q			Q							
IR29MW59F	C	0719J024	5/7/07	1418																						Q						Q	
IR29MW72F	C	0718N002	5/1/07	1215							Q							Q	Q														
IR29MW85F	C	0720W041	5/16/07	1525							Q							Q					Q			Q							
IR30MW04F	C	0718J001	4/30/07	0953																						Q							
IR34MW36A	D	0721N015	5/21/07	1100							Q							Q	Q														
IR36MW09A	E	0720H060	5/18/07	0842																						Q							
IR36MW11A	E	0719G005	5/10/07	1443																						Q							
IR36MW120B	E				annual sampling only																					A							
IR36MW121A	E				annual sampling only																					A							
IR36MW122A	E	0719A038	5/11/07	1416																						Q							
IR36MW123B	E	0720B002	5/17/07	1136																						Q							
IR36MW125A	E				insufficient water																					Q	Q						
IR36MW127A	E	0720A042	5/14/07	1104																						Q							
IR36MW128A	E	0720B003	5/17/07	1340																						Q							
IR36MW129B	E	0719G010	5/11/07	1422																						Q							

Table 4-1. Summary of groundwater sampling information (April-June 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotens	SM2520B Salinity
IR36MW12A	E	0720B004	5/17/07	1440																	Q	Q	Q			Q						
IR36MW14A	E	0720H061	5/18/07	0954																						Q						
IR36MW16A	D	0719W025	5/11/07	1038																						Q						
IR36MW17A	E	0719W023	5/11/07	0904																			Q			Q						
IR39MW21A	E				NAPL																Q	Q	Q			Q	Q					
IR39MW23A	E	0720A057	5/18/07	0900								Q						Q														
IR39MW33A	E	0720H062	5/18/07	1121																						Q						
IR39MW36A	E	0720W044	5/17/07	1522																						Q						
IR44MW08A	D	0719A017	5/7/07	1024								Q							Q		Q	Q										
IR46MW37A	B	0718H009	5/2/07	0940		Q	Q			Q		Q									Q	Q										
IR56MW39A	E	0718A005	5/2/07	1543																	Q	Q				Q	Q					
IR58MW25F	C	0718N001	5/1/07	1041								Q						Q	Q							Q						
IR58MW26A	C	0720W031	5/14/07	1400																						Q						
IR58MW31A	C	0720W043	5/17/07	1220																	Q	Q	Q	Q		Q						
IR58MW31F	C	0720G014	5/14/07	1537																						Q						
IR58MW32B	C	0720W047	5/18/07	1350																			Q			Q						
IR58MW33B	C	0720G013	5/14/07	1421																						Q						
IR61MW05A	B				sentinel well	SA	SA			SA		SA							SA		SA	SA										
IR64MW05A	C	0719J043	5/11/07	1100																						Q					Q	
IR70MW04A	D	0720H053	5/16/07	1326																						Q						
IR70MW07A	D	0720H054	5/16/07	1425																						Q						
IR71MW03A	D	0719A030	5/10/07	1057																						Q	Q					
IR71MW04A	D	0719A029	5/10/07	0936							Q															Q						Q
IR71MW12B	D	0719A031	5/10/07	1201																						Q						
IR74MW01A	E	0720G021	5/16/07	1316																						Q						
IR75MW05B	NNP	0720H050	5/15/07	1216								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR76MW13A	NNP	0720G022	5/16/07	1430																						Q						
PA28P04A	C	0719H043	5/11/07	1423																						Q						
PA36MW01A	E				annual sampling only																					A						
PA36MW02A	E	0721J064	5/21/07	0850								Q						Q	Q													
PA36MW04A	E	0720J062	5/18/07	1206																						Q						
PA36MW07A	E	0719W027	5/11/07	1435																						Q						
PA36MW08A	E				NAPL																					Q	Q					
PA50MW03A	C	0718W011	5/4/07	0919																						Q					Q	

Table 4-1. Summary of groundwater sampling information (April-June 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotens	SM2520B Salinity
PA50MW07A	D	0720W036	5/15/07	1430								Q						Q		Q						Q						
PA50MW11A	D	0721N014	5/21/07	0925								Q						Q	Q													
PA50MW12A	D	0720H052	5/16/07	1107								Q						Q	Q													
UT03MW11A	B				sentinel well	SA	SA			SA		SA							SA		SA	SA										

Notes: The analyses to be performed are as outlined in SAP Tables 7B-7M.

Abbreviations/Acronyms:
A: Annual sampling frequency
NAPL: Non-aqueous phase liquid
PCB: Polychlorinated biphenyls
Q: Quarterly sampling frequency
SA: Semiannual sampling frequency; sampled in 1st and 3rd quarters
SVOC: Semi-volatile organic compounds
TDS: Total dissolved solids
TSS: Total suspended solids
VOC: Volatile organic compounds

Parcel:
B+: Well is physically located in Parcel B, is assigned in the SAP to Parcel C, and is not assigned in the RAMP.
C+: Well is physically located in Parcel C, is assigned in the SAP to Parcel C, and is assigned in the RAMP to Parcel B.
NNP: Non-Navy Property, reported by SAP-assigned parcel

Table 4-2. Summary of groundwater sampling information (July-September 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 OilAndGrease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR01MW02B	NNP	0734J041	8/21/07	0905								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW03A	NNP	0734J042	8/21/07	1008								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW05A	NNP	0734J048	8/22/07	1010								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW09B	E-2	0734H070	8/23/07	0920								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW10A	E-2	0734J047	8/22/07	0916								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW17B	E-2				obstructed							Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW26B	E-2	0734W048	8/23/07	1059								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW31A	E-2	0734J034	8/20/07	1002								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW366A	E-2				insufficient water							Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW366B	E-2	0734D030	8/20/07	0933								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW367A	E-2				obstructed							Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW38A	E-2	0734W047	8/23/07	0922								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW403A	NNP	0735D058	8/27/07	1418								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW403B	E-2	0734J036	8/20/07	1122								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW42A	E-2	0735J074	8/28/07	1153								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW48A	E-2	0734D044	8/23/07	1025								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q		Q	
IR01MW53B	E-2	0734D043	8/23/07	0924								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MW58A	E-2				damaged																Q	Q		Q		Q	Q					
IR01MW60A	E-2	0734J055	8/23/07	1004								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q		Q	
IR01MW62A	E-2	0735J069	8/27/07	1121								Q						Q		Q						Q	Q		Q			
IR01MW63A	E-2	0733J024	8/16/07	1447								Q						Q		Q						Q			Q			
IR01MW64A	E-2	0734J054	8/23/07	0859								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q		Q	
IR01MWI-6	E-2				damaged							Q						Q		Q				Q		Q			Q			
IR01MWI-7	E-2	0734W052	8/23/07	1549								Q						Q		Q						Q	Q				Q	
IR01MWI-8	E-2	0734W037	8/21/07	1040								Q						Q		Q						Q	Q		Q		Q	
IR01MWLF1A	E-2	0735J070	8/27/07	1227								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MWLF2A	E-2	0735J068	8/27/07	0953								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MWLF4A	E-2				inaccessible							Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR01MWLF4B	E-2	0735D056	8/27/07	1003								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR02MW126A	E	0732J005	8/10/07	1059								Q						Q		Q	Q	Q				Q	Q	Q		Q	Q	
IR02MW147A	E	0732J006	8/10/07	1426								Q						Q		Q						Q		Q		Q	Q	
IR02MW149A	E	0732D004	8/8/07	1215								Q						Q	Q	Q								Q		Q	Q	
IR02MW175A	E	0732W010	8/10/07	1218								Q						Q		Q						Q		Q		Q	Q	
IR02MW179A	E	0732D010	8/10/07	1230								Q						Q		Q								Q		Q	Q	

Table 4-2. Summary of groundwater sampling information (July-September 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 OilAndGrease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR02MW206A2	E				damaged							Q						Q		Q						Q					Q	
IR02MW209A	E	0732W009	8/10/07	1102								Q						Q		Q						Q		Q		Q	Q	
IR02MW301A	E	0732D009	8/10/07	1123								Q						Q		Q			Q				Q	Q		Q	Q	
IR02MWB-1	E	0733J013	8/13/07	1332								Q						Q	Q	Q								Q		Q	Q	
IR02MWB-2	E				obstructed							Q						Q	Q	Q											Q	
IR02MWB-5	E				obstructed							Q						Q		Q				Q								
IR02MWC5-W	E				inaccessible							Q						Q								Q						
IR03MW218A2	E	0734D035	8/21/07	1204								Q						Q	Q	Q	Q	Q		Q		Q	Q					
IR03MW224A	E	0734H057	8/20/07	1336								Q						Q		Q				Q		Q	Q					
IR03MW228B	E	0734D034	8/21/07	0951																						Q						
IR03MW342A	E	0735W059	8/27/07	0952								Q						Q	Q	Q			Q			Q	Q					
IR03MW369A	E				NAPL							Q						Q		Q	Q	Q		Q		Q	Q					
IR03MW370A	E				NAPL							Q						Q		Q	Q	Q	Q	Q		Q	Q					
IR03MW371A	E				NAPL							Q						Q		Q	Q	Q		Q		Q	Q				Q	
IR03MW373B	E	0735W060	8/27/07	1100								Q						Q		Q	Q	Q	Q	Q		Q	Q					
IR04MW13A	E-2	0734D031	8/20/07	1037								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR04MW36A	E-2	0734H071	8/23/07	1045								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR04MW37A	E	0734J056	8/23/07	1129																						Q						
IR05MW85A	E	0734H075	8/23/07	1502								Q								Q						Q	Q					
IR06MW32A	C	0733D026	8/17/07	1232																	Q	Q				Q						
IR06MW35A	C	0733W023	8/15/07	1346																						Q						
IR06MW40A	C	0733H045	8/16/07	1231																						Q						
IR06MW42A	C+	0733J012	8/14/07	1047		Q	Q	Q	Q	Q		Q							Q		Q	Q										
IR06MW47F	C	0732H017	8/10/07	1321																						Q						
IR06MW52F	C	0732H019	8/10/07	1413																						Q						
IR06MW53F	C	0733J027	8/17/07	1010								Q						Q								Q						
IR06MW54F	C	0734H056	8/20/07	1107								Q						Q	Q				Q			Q						
IR06MW55F	C	0733H027	8/13/07	1429																						Q						
IR06MW59A1	C	0733J029	8/17/07	1132																						Q	Q					
IR06MW59A2	C	0732H021	8/10/07	1457																						Q						
IR06MW60A	C				inaccessible					Q		Q						Q	Q	Q	Q	Q										
IR07MW19A	B				inaccessible	Q	Q			Q		Q							Q		Q	Q										
IR07MW20A1	B				inaccessible	Q	Q			Q		Q							Q		Q	Q										
IR07MW21A1	B	0733W021	8/15/07	0954		Q	Q			Q		Q							Q		Q	Q										

Table 4-2. Summary of groundwater sampling information (July-September 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 OilAndGrease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR07MW23A	B	0733J016	8/15/07	1106		SA	SA			SA		SA							SA		SA	SA										
IR07MW24A	B	0733H037	8/15/07	0941		Q	Q			Q		Q							Q		Q	Q										
IR07MW25A	B	0733J015	8/15/07	0956		Q	Q			Q		Q							Q		Q	Q										
IR07MW26A	B	0733D014	8/15/07	1142		Q	Q			Q		Q							Q		Q	Q										
IR07MW27A	B	0733J017	8/15/07	1232		SA	SA	SA	SA	SA		SA							SA		SA	SA										
IR07MW28A	NNP	0733J011	8/14/07	0934		Q	Q	Q	Q	Q		Q							Q		Q	Q										
IR07MWS-2	B	0733D012	8/15/07	1005		Q	Q			Q		Q							Q		Q	Q										
IR07MWS-4	B	0733H038	8/15/07	1050		Q	Q			Q		Q							Q		Q	Q										
IR09MW35A	D	0733H024	8/13/07	1023								Q						Q	Q										Q			
IR09MW36A	D	0733H023	8/13/07	0942								Q						Q	Q										Q			
IR09MW37A	D	0732H007	8/9/07	1132								Q						Q	Q													
IR09MW38A	D	0732H001	8/8/07	1138								Q						Q	Q													
IR09MW39A	D	0733G002	8/13/07	1033								Q						Q	Q													
IR09MW44A	D	0733G008	8/14/07	1308								Q						Q	Q													
IR09MW45F	D	0733H026	8/13/07	1231								Q						Q	Q													
IR09MW51F	D	0732D001	8/8/07	1142								Q						Q	Q													
IR09MW52A	D	0733W026	8/16/07	1200								Q						Q	Q													
IR09MW61A	D	0733W022	8/15/07	1146							Q	Q						Q	Q													Q
IR09MW62A	D	0733W012	8/13/07	1218							Q	Q						Q	Q													Q
IR09MW63A	D	0733W025	8/16/07	1039							Q	Q						Q	Q													Q
IR09P040A	D	0733G003	8/13/07	1412								Q						Q	Q										Q			
IR09PPY1	D	0733J008	8/13/07	1053								Q						Q	Q										Q			
IR10MW13A1	B	0733H044	8/16/07	1031						Q																						
IR10MW14A	B				inaccessible					Q																						
IR10MW28A	B				insufficient water					Q		SA						SA	SA	SA	SA	SA										
IR10MW31A1	B	0733H043	8/16/07	0934		Q	Q			Q		Q							Q		Q	Q										
IR10MW33A	B	0733H035	8/14/07	1511						Q																			Q			
IR10MW59A	B	0733D016	8/15/07	1610						Q																						
IR10MW61A	B	0733W018	8/14/07	1454																												
IR10MW62A	B	0733H040	8/15/07	1445																												
IR10MW71A	B	0733D020	8/16/07	1257																												
IR10MW76A	B	0733D015	8/15/07	1532																												
IR10MW79A	B	0733H033	8/14/07	1352																												
IR10MW80A	B	0733H034	8/14/07	1431																												

Table 4-2. Summary of groundwater sampling information (July-September 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 OilAndGrease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR10MW81A	B	0733D018	8/16/07	0936								Q						Q	Q							Q						
IR10MW82A	B	0733D019	8/16/07	1040								Q						Q	Q							Q						
IR11MW25A	E				damaged																		Q			Q						
IR11MW27A	E				insufficient water																					Q					Q	
IR12MW13A	E	0734H073	8/23/07	1404																						Q						
IR12MW14A	E	0735W064	8/28/07	0939																						Q						
IR12MW17A	E				inaccessible																Q	Q	Q			Q	Q		Q			
IR12MW21A	E				NAPL							Q						Q								Q	Q					
IR15MW06A	E	0734W049	8/23/07	1405																						Q						
IR15MW10F	E	0734W051	8/23/07	1502																						Q						
IR18MW21A	B	0733H039	8/15/07	1210		Q	Q	Q	Q	Q		Q							Q		Q	Q										
IR22MW16A	D	0732H014	8/10/07	1054								Q						Q													Q	
IR22MW20A	D	0732H015	8/10/07	1132								Q						Q														
IR25MW16A	C	0733J026	8/17/07	0922																				Q		Q	Q					
IR25MW17A	C+	0733J021	8/16/07	1040						Q		SA						SA	SA	SA	SA	SA										
IR25MW37A	C+	0733G009	8/14/07	1524						Q																						
IR25MW40A	C	0733W028	8/16/07	1453																						Q						
IR25MW60A1	C				obstructed						Q													Q		Q	Q					Q
IR25MW61A1	B+	0733W031	8/17/07	1159							Q															Q	Q					Q
IR25MW61A2	B+	0733W030	8/17/07	0942							Q															Q	Q					Q
IR26MW41A	B	0733W027	8/16/07	1359		Q	Q			Q		Q							Q		Q	Q										
IR26MW46A	B	0733W015	8/14/07	1140		Q	Q	Q	Q			Q							Q													
IR26MW47A	B	0733W014	8/14/07	0953		Q	Q	Q	Q			Q							Q													
IR26MW48A	B	0733H032	8/14/07	1150		Q	Q	Q	Q			Q							Q													
IR26MW49A	B	0733H030	8/14/07	0927		Q	Q	Q	Q			Q							Q													
IR26MW50A	B	0733H031	8/14/07	1025		Q	Q	Q	Q			Q							Q													
IR28MW122A	C	0733D023	8/17/07	0954																						Q					Q	
IR28MW125A	C	0734W034	8/20/07	0938								Q						Q	Q							Q						
IR28MW136A	C				inaccessible							Q						Q								Q	Q					
IR28MW140F	C	0733J009	8/13/07	1525																						Q						
IR28MW150A	C	0732D002	8/8/07	1502																						Q						
IR28MW151A	C	0734W035	8/20/07	1108								Q						Q	Q	Q						Q	Q					
IR28MW155A	C	0734W045	8/22/07	1551																	Q	Q		Q		Q	Q					
IR28MW169A	C				inaccessible																					Q						

Table 4-2. Summary of groundwater sampling information (July-September 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 OilAndGrease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR28MW171A	C	0734D040	8/22/07	1436																			Q	Q		Q						
IR28MW171B	C	0734D039	8/22/07	1343							Q															Q	Q					Q
IR28MW172F	C	0734H072	8/23/07	1157																	Q	Q				Q						
IR28MW173B	C	0733H028	8/13/07	1519																						Q						
IR28MW188F	C	0733H046	8/16/07	1459																	Q	Q				Q						
IR28MW189F	C	0733J022	8/16/07	1243																						Q						
IR28MW190F	C	0734W041	8/22/07	1033																						Q						
IR28MW200A	C	0732H004	8/8/07	1425																						Q						
IR28MW201F	C	0732H003	8/8/07	1348																						Q						
IR28MW211F	C	0734J044	8/21/07	1409								Q								Q						Q						
IR28MW216F	C	0733G004	8/13/07	1554																						Q						
IR28MW217A	C	0733H051	8/17/07	1441																						Q						
IR28MW221A	C	0734W044	8/22/07	1449							Q															Q						Q
IR28MW221B	C	0734W043	8/22/07	1319							Q															Q						Q
IR28MW255F	C	0733D021	8/16/07	1419																						Q						
IR28MW268A	C	0734H061	8/21/07	1344																						Q						
IR28MW270A	C	0733D024	8/17/07	1047																						Q						
IR28MW272A	C	0734W055	8/24/07	1125																						Q						
IR28MW272F	C	0734W054	8/24/07	0927							Q															Q						Q
IR28MW287A	C	0734H063	8/22/07	0949																						Q						
IR28MW294A	C	0734D041	8/22/07	1538																						Q					Q	
IR28MW298A	C	0734J063	8/24/07	0935																						Q						
IR28MW299B	C	0735W061	8/27/07	1237																						Q						
IR28MW300F	C	0734H058	8/20/07	1456																						Q	Q					
IR28MW308A	C	0734D038	8/22/07	1150																						Q						
IR28MW309B	C	0734W042	8/22/07	1219																						Q						
IR28MW311A	C	0734J052	8/22/07	1514																						Q						
IR28MW312F	C	0734W038	8/21/07	1248																						Q	Q					
IR28MW315A	C	0734H067	8/22/07	1443							Q															Q						Q
IR28MW315B	C	0734H068	8/22/07	1521							Q															Q						Q
IR28MW315F	C	0734H066	8/22/07	1345							Q															Q						Q
IR28MW350F	C	0734D053	8/24/07	1114																						Q						
IR28MW352A	C	0734W039	8/21/07	1447																						Q						
IR28MW353A	C	0734J050	8/22/07	1355																						Q						

Table 4-2. Summary of groundwater sampling information (July-September 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 OilAndGrease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR28MW353B	C	0734J051	8/22/07	1424							Q															Q	Q					Q
IR28MW355F	C	0734J045	8/21/07	1540																						Q						
IR28MW394A	C	0734H077	8/24/07	1102																	Q	Q				Q						
IR28MW394B	C	0734H078	8/24/07	1144																	Q	Q				Q						
IR28MW395F	C	0734D032	8/20/07	1450																						Q						
IR28MW396A	C	0732W001	8/8/07	1414																						Q						
IR28MW396B	C	0732W003	8/8/07	1510																						Q						
IR28MW397B	C	0734H064	8/22/07	1038																						Q						
IR28MW398A	C	0734D037	8/22/07	1047																						Q	Q					
IR28MW398B	C	0733J032	8/17/07	1504																						Q						
IR28MW399B	C	0733J030	8/17/07	1421																						Q						
IR28MW406	C	0733D027	8/17/07	1428																						Q						
IR28MW407	C	0733D028	8/17/07	1516																						Q						
IR29MW56F	C	0735J072	8/28/07	0930																	Q	Q				Q	Q				Q	
IR29MW58F	C	0735H084	8/27/07	1348																	Q	Q	Q			Q						
IR29MW59F	C	0734H065	8/22/07	1130																						Q					Q	
IR29MW72F	C	0734H053	8/20/07	0908								Q						Q	Q													
IR29MW85F	C	0734D052	8/24/07	0955								Q						Q					Q			Q						
IR30MW04F	C	0732H005	8/8/07	1547																						Q						
IR34MW36A	D	0733H025	8/13/07	1126								Q						Q	Q													
IR36MW09A	E	0734D054	8/24/07	1346																						Q						
IR36MW11A	E	0734J066	8/24/07	1225																						Q						
IR36MW120B	E				annual sampling only																					A						
IR36MW121A	E				annual sampling only																					A						
IR36MW122A	E	0734D048	8/23/07	1446																						Q						
IR36MW123B	E	0734D046	8/23/07	1402																						Q						
IR36MW125A	E				insufficient water																					Q	Q					
IR36MW127A	E	0734J057	8/23/07	1345																						Q						
IR36MW128A	E	0734J059	8/23/07	1439																						Q						
IR36MW129B	E	0734J061	8/23/07	1516																						Q						
IR36MW12A	E	0734D045	8/23/07	1204																	Q	Q	Q			Q						
IR36MW14A	E	0734J064	8/24/07	1036																						Q						
IR36MW16A	D	0734J065	8/24/07	1142																						Q						
IR36MW17A	E	0734D050	8/23/07	1533																			Q			Q						

Table 4-2. Summary of groundwater sampling information (July-September 2007)

Well ID	Parcel	Sample ID	Sample Date	Sample Time	Comments	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 OilAndGrease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA9901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR39MW21A	E				NAPL																Q	Q	Q			Q	Q					
IR39MW23A	E	0734W057	8/24/07	1407																							Q					
IR39MW33A	E	0735J073	8/28/07	1107								Q						Q														
IR39MW36A	E	0734W056	8/24/07	1304																						Q						
IR44MW08A	D	0732D005	8/9/07	1545																						Q						
IR46MW37A	B	0733G006	8/14/07	1030		Q	Q			Q		Q							Q		Q	Q										
IR56MW39A	E	0735H082	8/27/07	1032																	Q	Q				Q	Q					
IR58MW25F	C	0734H054	8/20/07	1011								Q						Q	Q							Q						
IR58MW26A	C	0734J038	8/20/07	1530																						Q						
IR58MW31A	C	0733H048	8/17/07	1033																	Q	Q	Q	Q		Q						
IR58MW31F	C	0733H050	8/17/07	1352																						Q						
IR58MW32B	C	0734J049	8/22/07	1146																			Q			Q						
IR58MW33B	C	0733H049	8/17/07	1125																						Q						
IR61MW05A	B	0733J020	8/16/07	0925		SA	SA			SA		SA							SA		SA	SA										
IR64MW05A	C	0734H060	8/21/07	1146																						Q					Q	
IR70MW04A	D	0732H011	8/9/07	1558																						Q						
IR70MW07A	D	0732H010	8/9/07	1455																						Q						
IR71MW03A	D	0732J002	8/9/07	1528																						Q	Q					
IR71MW04A	D	0732W006	8/9/07	1541							Q															Q						Q
IR71MW12B	D	0732J001	8/9/07	1439																						Q						
IR74MW01A	E	0734H079	8/24/07	1304																						Q						
IR75MW05B	NNP	0735D057	8/27/07	1243								Q	Q	Q	Q	Q	Q	Q		Q	Q	Q	Q	Q	Q	Q	Q		Q			
IR76MW13A	NNP	0735W062	8/27/07	1457																						Q						
PA28P04A	C	0733W032	8/17/07	1350																						Q						
PA36MW01A	E				annual sampling only																					A						
PA36MW02A	E	0735H081	8/27/07	0934								Q						Q	Q													
PA36MW04A	E	0735H083	8/27/07	1129																						Q						
PA36MW07A	E	0734J037	8/20/07	1431																						Q						
PA36MW08A	E				NAPL																					Q	Q					
PA50MW03A	C	0734J043	8/21/07	1140																						Q			Q		Q	
PA50MW07A	D	0732H008	8/9/07	1353								Q						Q		Q						Q						
PA50MW11A	D				inaccessible							Q						Q	Q													
PA50MW12A	D	0732W005	8/9/07	1327								Q						Q	Q													
UT03MW11A	B				inaccessible	SA	SA			SA		SA							SA		SA	SA										

Notes: The analyses to be performed are as outlined in SAP Tables 7B-7M.

Abbreviations/Acronyms:

A: Annual sampling frequency
NAPL: Non-aqueous phase liquid
PCB: Polychlorinated biphenyls
Q: Quarterly sampling frequency
SA: Semiannual sampling frequency; sampled in 1st and 3rd quarters
SVOC: Semi-volatile organic compounds
TDS: Total dissolved solids
TSS: Total suspended solids
VOC: Volatile organic compounds

Parcel:

B+: Well is physically located in Parcel B, is assigned in the SAP to Parcel C, and is not assigned in the RAMP.
C+: Well is physically located in Parcel C, is assigned in the SAP to Parcel C, and is assigned in the RAMP to Parcel B.
NNP: Non-Navy Property, reported by SAP-assigned parcel

Table 4-3. Summary of quality control sample information (April-June 2007).

Well ID	Parcel	Sample ID	QC Sample Type	Sample Date	Sample Time	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR01MW10A	E-2	IR01EB798	EB	5/8/07	1410							X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X			
IR01MW403B	E-2	0720A048	FD	5/16/07	0932							X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X			
IR01MW62A	E-2	0720N006	FD	5/15/07	0952							X						X		X						X	X		X			
IR01MW63A	E-2	0720N004	FD	5/15/07	0900							X						X		X						X			X			
IR01MW64A	E-2	IR01EB830	EB	5/21/07	1651							X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X		X	
IR03MW224A	E	IR03EB825	EB	5/18/07	1125							X						X		X				X		X	X					
IR03MW228B	E	0719G004	FD	5/10/07	1217																					X						
IR04MW37A	E	IR04EB779	EB	5/2/07	1444																					X						
IR05MW85A	E	IR05EB781	EB	5/2/07	1556							X								X						X	X					
IR06MW35A	C	IR06EB776	EB	5/1/07	1430																											
IR06MW47F	C	IR06EB773	EB	4/30/07	1230																											
IR06MW52F	C	0718J004	FD	4/30/07	1358																					X						
IR06MW54F	C	IR06EB784	EB	5/3/07	1130							X						X	X				X			X						
IR06MW59A1	C	IR06EB777	EB	5/1/07	1510																					X	X					
IR07MW25A	B	0719J036	FD	5/10/07	0930	X	X			X		X							X		X	X										
IR07MWS-4	B	IR07EB807	EB	5/14/07	1055	X	X			X		X							X		X	X										
IR09MW35A	D	0718W002	FD	5/1/07	1058							X						X	X										X			
IR09MW37A	D	IR09EB815	EB	5/16/07	1049							X						X	X													
IR09MW51F	D	IR09EB775	EB	5/1/07	1515							X						X	X													
IR09MW52A	D	IR09EB828	EB	5/21/07	1338							X						X	X													
IR09MW62A	D	0719H025	FD	5/7/07	0935						X	X						X	X							X						X
IR10MW14A	B	IR10EB806	EB	5/11/07	1030					X																						
IR10MW62A	B	IR10EB800	EB	5/10/07	1535																					X						
IR10MW71A	B	IR10EB789	EB	5/4/07	1031																					X						
IR10MW79A	B	IR10EB817	EB	5/16/07	1150																					X						
IR10MW80A	B	IR10EB803	EB	5/11/07	1025																					X						
IR10MW80A	B	0719H040	FD	5/11/07	1002																					X						
IR10MW82A	B	IR10EB829	EB	5/21/07	1357							X						X	X							X						
IR12MW13A	E	IR12EB783	EB	5/3/07	1215																					X						
IR12MW14A	E	IR12EB822	EB	5/17/07	1438																					X						
IR15MW06A	E	IR15EB818	EB	5/16/07	1536																					X						
IR15MW10F	E	IR15EB812	EB	5/15/07	1457																					X						
IR18MW21A	B	IR18EB831	EB	5/22/07	1210	X	X	X	X	X		X							X		X	X										
IR22MW16A	D	0719J032	FD	5/8/07	1352							X						X													X	
IR22MW20A	D	0719J034	FD	5/8/07	1440							X						X														
IR25MW16A	C	0718A003	FD	5/2/07	1223																			X		X	X					

Table 4-3. Summary of quality control sample information (April-June 2007).

Well ID	Parcel	Sample ID	QC Sample Type	Sample Date	Sample Time	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR25MW61A1	B+	IR25EB778	EB	5/2/07	0900						X															X	X					X
IR28MW136A	C	IR28EB790	EB	5/4/07	1408							X						X								X	X					
IR28MW136A	C	0718D012	FD	5/4/07	1240							X						X								X	X					
IR28MW150A	C	IR28EB787	EB	5/4/07	1130																					X						
IR28MW169A	C	IR28EB782	EB	5/2/07	1510																					X						
IR28MW171A	C	0718D007	FD	5/2/07	1550																		X	X		X						
IR28MW171B	C	IR28EB780	EB	5/2/07	1510						X															X	X					X
IR28MW189F	C	IR28EB820	EB	5/17/07	1045																					X						
IR28MW190F	C	IR28EB795	EB	5/7/07	1545																					X						
IR28MW190F	C	0719H028	FD	5/7/07	1529																					X						
IR28MW201F	C	0719A033	FD	5/10/07	1411																					X						
IR28MW217A	C	IR28EB805	EB	5/11/07	1054																					X						
IR28MW221B	C	IR28EB785	EB	5/3/07	1455						X															X						X
IR28MW272F	C	IR28EB813	EB	5/15/07	1436						X															X						X
IR28MW287A	C	IR28EB814	EB	5/15/07	1530																					X						
IR28MW300F	C	IR28EB791	EB	5/4/07	0940																					X	X					
IR28MW308A	C	IR28EB801	EB	5/10/07	1505																					X						
IR28MW309B	C	IR28EB809	EB	5/14/07	1158																					X						
IR28MW311A	C	0719A021	FD	5/7/07	1447																					X						
IR28MW315F	C	IR28EB796	EB	5/8/07	1434						X															X						X
IR28MW352A	C	IR28EB794	EB	5/7/07	1202																					X						
IR28MW353A	C	0718H021	FD	5/4/07	1325																					X						
IR28MW355F	C	IR28EB811	EB	5/15/07	1217																					X						
IR28MW394B	C	IR28EB797	EB	5/8/07	1505																	X	X			X						
IR28MW396A	C	IR28EB793	EB	5/7/07	1205																					X						
IR28MW398B	C	IR28EB788	EB	5/4/07	1145																					X						
IR28MW407	C	IR28EB786	EB	5/3/07	1458																					X						
IR30MW04F	C	IR30EB774	EB	4/30/07	1020																					X						
IR36MW11A	E	IR36EB802	EB	5/10/07	1458																					X						
IR36MW122A	E	0719A039	FD	5/11/07	1418																					X						
IR36MW123B	E	IR36EB819	EB	5/17/07	1205																					X						
IR36MW127A	E	IR36EB808	EB	5/14/07	1133																					X						
IR36MW129B	E	0719G011	FD	5/11/07	1423																					X						
IR36MW14A	E	IR36EB823	EB	5/18/07	1015																					X						
IR36MW16A	D	IR36EB804	EB	5/11/07	1110																					X						
IR36MW16A	D	0719W026	FD	5/11/07	1040																					X						

Table 4-3. Summary of quality control sample information (April-June 2007).

Well ID	Parcel	Sample ID	QC Sample Type	Sample Date	Sample Time	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR36MW17A	E	0719W024	FD	5/11/07	0909																		X			X						
IR39MW23A	E	IR39EB824	EB	5/18/07	0919																					X						
IR39MW36A	E	IR39EB821	EB	5/17/07	1550																					X						
IR44MW08A	D	IR44EB792	EB	5/7/07	1048																					X						
IR58MW33B	C	IR58EB810	EB	5/14/07	1438																					X						
IR71MW12B	D	IR71EB799	EB	5/10/07	1224																					X						
PA36MW04A	E	PA36EB826	EB	5/18/07	1230																					X						
PA50MW12A	D	PA50EB816	EB	5/16/07	1125							X						X	X													
TB	Not Assigned	0718A006	TB	5/2/07	1600					X											X											
TB	Not Assigned	0718A010	TB	5/3/07	1501																					X						
TB	Not Assigned	0718A015	TB	5/4/07	1402					X																						
TB	Not Assigned	0718D002	TB	5/1/07	1440																					X						
TB	Not Assigned	0718D008	TB	5/2/07	1600																X					X						
TB	Not Assigned	0718D010	TB	5/3/07	1300																					X						
TB	Not Assigned	0718D013	TB	5/4/07	1300																					X						
TB	Not Assigned	0718H003	TB	4/30/07	1430																					X						
TB	Not Assigned	0718H008	TB	5/1/07	1500																					X						
TB	Not Assigned	0718H013	TB	5/2/07	1530					X											X											
TB	Not Assigned	0718H017	TB	5/3/07	1500																					X						
TB	Not Assigned	0718H023	TB	5/4/07	1500																					X						
TB	Not Assigned	0718J005	TB	4/30/07	1410																					X						
TB	Not Assigned	0718J010	TB	5/1/07	1530																X					X						
TB	Not Assigned	0718J014	TB	5/2/07	1530																X					X						
TB	Not Assigned	0718J017	TB	5/4/07	1400																X					X						
TB	Not Assigned	0718W004	TB	5/1/07	1430					X																						
TB	Not Assigned	0718W006	TB	5/2/07	1500					X																						
TB	Not Assigned	0718W010	TB	5/3/07	1600																					X						
TB	Not Assigned	0718W013	TB	5/4/07	1500																					X						
TB	Not Assigned	0719A022	TB	5/7/07	1500																					X						
TB	Not Assigned	0719A028	TB	5/8/07	1500																					X						
TB	Not Assigned	0719A035	TB	5/10/07	1530																					X						
TB	Not Assigned	0719A040	TB	5/11/07	1500																					X						
TB	Not Assigned	0719D017	TB	5/7/07	1500																X					X						
TB	Not Assigned	0719G006	TB	5/10/07	1530																					X						
TB	Not Assigned	0719G012	TB	5/11/07	1500																					X						
TB	Not Assigned	0719H029	TB	5/7/07	1600																					X						

Table 4-3. Summary of quality control sample information (April-June 2007).

Well ID	Parcel	Sample ID	QC Sample Type	Sample Date	Sample Time	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
TB	Not Assigned	0719H034	TB	5/8/07	1530																X					X						
TB	Not Assigned	0719H037	TB	5/10/07	1600																X					X						
TB	Not Assigned	0719H044	TB	5/11/07	1500					X																						
TB	Not Assigned	0719J026	TB	5/7/07	1530																					X						
TB	Not Assigned	0719J042	TB	5/10/07	1600																					X						
TB	Not Assigned	0719J046	TB	5/11/07	1522																					X						
TB	Not Assigned	0719W017	TB	5/7/07	1600																					X						
TB	Not Assigned	0719W022	TB	5/10/07	1540																					X						
TB	Not Assigned	0719W028	TB	5/11/07	1520																					X						
TB	Not Assigned	0720A043	TB	5/14/07	1300																X					X						
TB	Not Assigned	0720A046	TB	5/15/07	1530																X					X						
TB	Not Assigned	0720A051	TB	5/16/07	1615																X					X						
TB	Not Assigned	0720A056	TB	5/17/07	1630																X					X						
TB	Not Assigned	0720A059	TB	5/18/07	1100																					X						
TB	Not Assigned	0720B005	TB	5/17/07	1530																X					X						
TB	Not Assigned	0720G015	TB	5/14/07	1615																					X						
TB	Not Assigned	0720G019	TB	5/15/07	1620																					X						
TB	Not Assigned	0720G023	TB	5/16/07	1500																					X						
TB	Not Assigned	0720H048	TB	5/14/07	1600																X					X						
TB	Not Assigned	0720H051	TB	5/15/07	1600																X					X						
TB	Not Assigned	0720H055	TB	5/16/07	1500																					X						
TB	Not Assigned	0720H059	TB	5/17/07	1500																X					X						
TB	Not Assigned	0720H063	TB	5/18/07	1200																					X						
TB	Not Assigned	0720J052	TB	5/14/07	1500																X					X						
TB	Not Assigned	0720J060	TB	5/16/07	1600																					X						
TB	Not Assigned	0720J063	TB	5/18/07	1300																					X						
TB	Not Assigned	0720N008	TB	5/15/07	1315																					X						
TB	Not Assigned	0720N011	TB	5/17/07	1200																					X						
TB	Not Assigned	0720N013	TB	5/18/07	1030																					X						
TB	Not Assigned	0720W033	TB	5/14/07	1550																					X						
TB	Not Assigned	0720W037	TB	5/15/07	1500																					X						
TB	Not Assigned	0720W042	TB	5/16/07	1615																X					X						
TB	Not Assigned	0720W045	TB	5/17/07	1615																X					X						
TB	Not Assigned	0720W048	TB	5/18/07	1430																					X						
TB	Not Assigned	0721J068	TB	5/21/07	1630					X											X											
TB	Not Assigned	0721W052	TB	5/21/07	1700																X					X						

Table 4-3. Summary of quality control sample information (April-June 2007).

Well ID	Parcel	Sample ID	QC Sample Type	Sample Date	Sample Time	Mercury-CLP	Metals-CLP	Pesticides and PCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199 Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organochlorine Pesticides	EPA8082 PCBs	EPA8141A Organophosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
TB	Not Assigned	0721W054	TB	5/22/07	1510					X											X											
TB	Not Assigned	IR01TB227	TB	5/1/07	1509																X					X						
TB	Not Assigned	IR07TB233	TB	5/10/07	1530					X											X					X						
TB	Not Assigned	IR07TB236	TB	5/14/07	1430					X											X											
TB	Not Assigned	IR10TB228	TB	5/2/07	1500					X											X					X						
TB	Not Assigned	IR10TB234	TB	5/11/07	1600					X											X											
TB	Not Assigned	IR10TB238	TB	5/16/07	1515					X											X											
TB	Not Assigned	IR10TB241	TB	5/21/07	1705					X											X											
TB	Not Assigned	IR18TB242	TB	5/22/07	1500					X											X											
TB	Not Assigned	IR25TB229	TB	5/3/07	1530					X											X					X						
TB	Not Assigned	IR28TB230	TB	5/4/07	1545					X											X											
TB	Not Assigned	IR28TB231	TB	5/7/07	1507																X					X						
TB	Not Assigned	IR28TB232	TB	5/7/07	1515																X					X						
TB	Not Assigned	IR28TB239	TB	5/17/07	1530																X					X						
TB	Not Assigned	IR36TB235	TB	5/11/07	1400					X											X											
TB	Not Assigned	IR36TB240	TB	5/18/07	1400																X					X						
TB	Not Assigned	IR75TB237	TB	5/15/07	1545																X					X						

Notes:

Abbreviations/Acronyms:
- **CLP: Contract Laboratory Procedure**
- **EB: Equipment rinsate (blank) sample**
- **FD: Field duplicate sample**
- **PCB: Polychlorinated biphenyl**
- **SVOC: Semi-volatile organic compound**
- **TB: Trip blank sample**
- **TDS: Total dissolved solids**
- **TSS: Total suspended solids**
- **VOCs: Volatile organic compounds**

Parcel:
- **B+: Well is physically located in Parcel B, is assigned in the SAP to Parcel C, and is not assigned in the RAMP.**
- **NNP: Non-Navy Property, reported by SAP-assigned parcel**

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Table 4-4. Summary of quality control sample information (July-September 2007)

Well ID	Parcel	Sample ID	QC Sample Type	Sample Date	Sample Time	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199_Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organo-chlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
IR07MW27A	B	0733J018	EB	8/15/07	1247	X	X	X	X	X									X													
IR25MW17A	C+	0733J023	EB	8/16/07	1400					X								X	X														
IR01MW42A	E-2	0735J075	EB	8/28/07	1213										X	X	X	X					X	X	X	X	X					
IR01MW31A	E-2	0734J035	FD	8/20/07	1007							X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X			
IR06MW47F	C	0732H018	FD	8/10/07	1326																					X						
IR06MW52F	C	0732H020	FD	8/10/07	1418																					X						
IR06MW53F	C	0733J028	FD	8/17/07	1015							X						X								X						
IR07MWS-2	B	0733D013	FD	8/15/07	1008	X	X			X		X							X		X	X										
IR09MW38A	D	0732H002	FD	8/8/07	1143							X						X	X													
IR10MW61A	B	0733W019	FD	8/14/07	1502																					X						
IR12MW13A	E	0734H074	FD	8/23/07	1409																					X						
IR15MW06A	E	0734W050	FD	8/23/07	1410																					X						
IR22MW20A	D	0732H016	FD	8/10/07	1137							X						X														
IR28MW270A	C	0733D025	FD	8/17/07	1052																					X						
IR28MW396A	C	0732W002	FD	8/8/07	1419																					X						
IR28MW399B	C	0733J031	FD	8/17/07	1426																					X						
IR36MW122A	E	0734D049	FD	8/23/07	1451																					X						
IR36MW123B	E	0734D047	FD	8/23/07	1407																					X						
IR36MW127A	E	0734J058	FD	8/23/07	1350																					X						
IR36MW128A	E	0734J060	FD	8/23/07	1444																					X						
IR44MW08A	D	0732D006	FD	8/9/07	1550																					X						
IR46MW37A	B	0733G007	FD	8/14/07	1035	X	X			X		X							X		X	X	-									
IR58MW25F	C	0734H055	FD	8/20/07	1016							X						X	X							X						
IR58MW26A	C	0734J039	FD	8/20/07	1535																					X						
PA50MW07A	D	0732H009	FD	8/9/07	1358							X						X		X						X						
TB	Not Assigned	0732D003	TB	8/8/07	1530																					X						
TB	Not Assigned	0732D007	TB	8/9/07	1600																					X						
TB	Not Assigned	0732D008	TB	8/10/07	0800																					X						
TB	Not Assigned	0732H006	TB	8/8/07	1600																					X						
TB	Not Assigned	0732H012	TB	8/9/07	1600																					X						
TB	Not Assigned	0732H013	TB	8/10/07	1000																					X						
TB	Not Assigned	0732J003	TB	8/9/07	1545																					X						
TB	Not Assigned	0732J004	TB	8/10/07	0800																					X						
TB	Not Assigned	0732W004	TB	8/8/07	1530																					X						
TB	Not Assigned	0732W007	TB	8/9/07	1600																					X						
TB	Not Assigned	0732W008	TB	8/10/07	0800																					X						

Table 4-4. Summary of quality control sample information (July-September 2007)

Well ID	Parcel	Sample ID	QC Sample Type	Sample Date	Sample Time	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199_Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organo-chlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
TB	Not Assigned	0732X001	TB	8/8/07	1500																					X						
TB	Not Assigned	0732X002	TB	8/9/07	1600																					X						
TB	Not Assigned	0732X003	TB	8/10/07	1430																					X						
TB	Not Assigned	0733D011	TB	8/15/07	0800					X																						
TB	Not Assigned	0733D017	TB	8/16/07	0800					X																						
TB	Not Assigned	0733D022	TB	8/17/07	0800																					X						
TB	Not Assigned	0733G001	TB	8/13/07	0800																					X						
TB	Not Assigned	0733G005	TB	8/14/07	0800					X																						
TB	Not Assigned	0733H022	TB	8/13/07	0800																					X						
TB	Not Assigned	0733H029	TB	8/14/07	0800					X																						
TB	Not Assigned	0733H036	TB	8/15/07	0800					X																						
TB	Not Assigned	0733H042	TB	8/16/07	0800					X																						
TB	Not Assigned	0733H047	TB	8/17/07	0800																					X						
TB	Not Assigned	0733J007	TB	8/13/07	0800																					X						
TB	Not Assigned	0733J010	TB	8/14/07	0800					X																						
TB	Not Assigned	0733J014	TB	8/15/07	0800					X																						
TB	Not Assigned	0733J019	TB	8/16/07	0800					X																						
TB	Not Assigned	0733J025	TB	8/17/07	0800																					X						
TB	Not Assigned	0733W011	TB	8/13/07	0800																					X						
TB	Not Assigned	0733W013	TB	8/14/07	0800																					X						
TB	Not Assigned	0733W020	TB	8/15/07	0800					X																						
TB	Not Assigned	0733W024	TB	8/16/07	0800					X																						
TB	Not Assigned	0733W029	TB	8/17/07	0800																					X						
TB	Not Assigned	0733X004	TB	8/13/07	1530																					X						
TB	Not Assigned	0733X005	TB	8/14/07	1530					X																						
TB	Not Assigned	0733X006	TB	8/15/07	1530					X																						
TB	Not Assigned	0733X007	TB	8/16/07	1400					X																						
TB	Not Assigned	0733X008	TB	8/17/07	1430					X																						
TB	Not Assigned	0734D029	TB	8/20/07	0800																					X						
TB	Not Assigned	0734D033	TB	8/21/07	0800																					X						
TB	Not Assigned	0734D036	TB	8/22/07	0800																					X						
TB	Not Assigned	0734D042	TB	8/23/07	0800																					X						
TB	Not Assigned	0734D051	TB	8/24/07	0800																					X						
TB	Not Assigned	0734H052	TB	8/20/07	0800																					X						
TB	Not Assigned	0734H059	TB	8/21/07	0800																					X						
TB	Not Assigned	0734H062	TB	8/22/07	0800																					X						

Table 4-4. Summary of quality control sample information (July-September 2007)

Well ID	Parcel	Sample ID	QC Sample Type	Sample Date	Sample Time	Mercury-CLP	Metals-CLP	PesticidesAndPCBs-CLP	SVOCs-CLP	VOCs-CLP	EPA160-1 TDS	EPA160-2 TSS	EPA1664 Oil and Grease	EPA300-0 Anions-Inorganics	EPA350-1 Nitrogen-Ammonia	EPA351-2 Nitrogen-Kjeldahl Total	EPA376-1 Sulfide	EPA6010B Dissolved Metals	EPA 7199_Hexavalent Chromium	EPA7470A Dissolved Mercury	EPA8015 Gas	EPA8015M Diesel or Motor Oil	EPA8081A Organo-chlorine Pesticides	EPA8082 PCBs	EPA8141A Organo-phosphorus Cpds and Pesticides	EPA8260B VOCs-8260	EPA8270C SVOCs-8270	EPA901-0 Cesium-137	EPA9010B Cyanide	EPA903-1 Radium-226	FPD-GC Organotins	SM2520B Salinity
TB	Not Assigned	0734H069	TB	8/23/07	0800																					X						
TB	Not Assigned	0734H076	TB	8/24/07	0800																					X						
TB	Not Assigned	0734J033	TB	8/20/07	0800																					X						
TB	Not Assigned	0734J040	TB	8/21/07	0800																					X						
TB	Not Assigned	0734J046	TB	8/22/07	0800																					X						
TB	Not Assigned	0734J053	TB	8/23/07	0800																					X						
TB	Not Assigned	0734J062	TB	8/24/07	0800																					X						
TB	Not Assigned	0734W033	TB	8/20/07	0800																					X						
TB	Not Assigned	0734W036	TB	8/21/07	0800																					X						
TB	Not Assigned	0734W040	TB	8/22/07	0800																					X						
TB	Not Assigned	0734W046	TB	8/23/07	0800																					X						
TB	Not Assigned	0734W053	TB	8/24/07	0800																					X						
TB	Not Assigned	0734X009	TB	8/20/07	1530																					X						
TB	Not Assigned	0734X010	TB	8/21/07	1530																					X						
TB	Not Assigned	0734X011	TB	8/22/07	1500																					X						
TB	Not Assigned	0734X012	TB	8/23/07	1600																					X						
TB	Not Assigned	0734X013	TB	8/24/07	1530																					X						
TB	Not Assigned	0735D055	TB	8/27/07	0800																					X						
TB	Not Assigned	0735H080	TB	8/27/07	0800																					X						
TB	Not Assigned	0735J067	TB	8/27/07	0800																					X						
TB	Not Assigned	0735J071	TB	8/28/07	0800																					X						
TB	Not Assigned	0735W058	TB	8/27/07	0800																					X						
TB	Not Assigned	0735W063	TB	8/28/07	0800																					X						
TB	Not Assigned	0735X014	TB	8/27/07	1500																					X						
TB	Not Assigned	0735X015	TB	8/28/07	1400																					X						

Notes:

Abbreviations/Acronyms:

CLP: Contract Laboratory Procedure
EB: Equipment rinsate (blank) sample
FD: Field duplicate sample
PCB: Polychlorinated biphenyl
SVOC: Semi-volatile organic compound
TB: Trip blank sample
TDS: Total dissolved solids
TSS: Total suspended solids
VOCs: Volatile organic compounds

Parcel:

B+: Well is physically located in Parcel B, is assigned in the SAP to Parcel C, and is not assigned in the RAMP.

NNP: Non-Navy Property, reported by SAP-assigned parcel

Table 4-5. Parcel B trigger level criteria for each RAMP monitoring well type.

Monitoring Well Type	Trigger Levels
POC	NAWQC or HGALs, whichever is higher, or the lowest attainable laboratory quantitation limit, if that is higher. TPH trigger levels from the petroleum hydrocarbons Corrective Action Plan (AFA Construction, Inc., 1997)
Sentinel	Ten times the trigger levels for POC monitoring wells
Post-Remedial Action	Same as the trigger levels for POC monitoring wells
VOC	For vinyl chloride, same as the trigger levels for POC monitoring wells For TCE and cis-1,2-DCE, 10 times the trigger levels for POC monitoring wells or measured increase in vinyl chloride Inhalation trigger levels for monitoring well inside building
On- and Off-site Migration	Well IR07MW28A: same as POC well trigger levels Well IR18MW21A: 10 times POC well trigger levels
Utility Line	Southeast Water Pollution Control Plant discharge requirements

Notes:

Acronyms/Abbreviations:

DCE: Dichloroethene
HGAL: Hunters Point groundwater ambient level (PRC, 1996)
NAWQC: National Ambient Water Quality Criteria (TtEMI, 1999)
POC: Point-of-compliance
RAMP: Remedial Action Monitoring Plan
TCE: Trichloroethene
TPH: Total petroleum hydrocarbons
VOC: Volatile organic compound

Sources:

AFA Construction, Inc. 1997. "Draft Petroleum Hydrocarbon Corrective Action Plan, Hunters Point Shipyard (HPS), San Francisco, California." November 4.

PRC 1996. "Estimation of Hunters Point Shipyard Groundwater Ambient Technical Memorandum," September 16.

TtEMI 1999. "Final Remedial Action Monitoring Plan, Parcel B, Hunters Point Shipyard, San Francisco, California." July 2.

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Table 4-6. Parcel B proposed trigger level criteria for non-RAMP monitoring wells.

Monitoring Well	Chemical	Trigger Level[a] (µg/L)	Reference
IR10MW12A[b] (hexavalent chromium well)	Hexavalent chromium	50	NAWQC
IR26MW46A, IR26MW47A, IR26MW48A (Supplemental Characterization wells)	Aroclor-1260	0.20	Analytical QL
	Arsenic	36	NAWQC
	Chlordane[c]	0.01	Analytical QL
	Copper	28.0	HGAL
	Chromium (total)	1,030	NAWQC
	Hexavalent chromium	50	NAWQC
	Lead	14.4	HGAL
	Manganese	8,140	HGAL
	Mercury	0.60	HGAL
	Zinc	81	NAWQC
	Benzo(a)anthracene	300	NAWQC
	Benzo(a)pyrene	300	NAWQC
	Benzo(b)fluoranthene	300	NAWQC
	Benzo(k)fluoranthene	300	NAWQC
	Chrysene	300	NAWQC
	Dibenzo(a,h)anthracene	300	NAWQC
	Indeno(1,2,3-cd)pyrene	300	NAWQC

Notes:

a Action and screening levels are the higher of the applicable NAWQC for exposure of aquatic organisms (if no criterion for chronic exposure is available, 1/10th of the criterion for acute exposure is used) or the HGAL, unless otherwise specified.

b A significant increase in vinyl chloride concentrations at this well will result in notification of the Base Realignment and Closure Cleanup Team.

c No criteria for chlordane were noted in the Remedial Action Monitoring Plan or the Record of Decision (TtEMI, 1999, 1997).

Acronyms/Abbreviations:

µg/L: Microgram per liter
HGAL: Hunters Point groundwater ambient level (PRC, 1996); (TtEMI, 1997)
IR: Installation Restoration
NAWQC: National Ambient Water Quality Criteria (TtEMI, 1999)
QL: Quantitation limit

Sources:

PRC, 1996. "Estimation of Hunters Point Shipyard Groundwater Ambient Technical Memorandum." September 16.

TtEMI 1997. "Final Record of Decision, Parcel B, Hunters Point Shipyard, San Francisco, California." October 9.

TtEMI 1999. "Final Remedial Action Monitoring Plan, Parcel B, Hunters Point Shipyard, San Francisco, California." July 2.

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Table 4-7. Numerical Parcel B trigger levels.

Analyte	POC Well Trigger Level (µg/L)[a]	Sentinel Well Trigger Level (µg/L)[b]	VOC Well Trigger Level (µg/L)[c]	Utility Line Well Trigger Level (µg/L)[d]	HGAL (µg/L)[e]	NAWQC (µg/L)[e]	Parcel B ROD Trigger Level (µg/L)[f]
TPH-D and TPH-G[g]	NT	NT	NT	NT	NA	NA	NT
PAHs	300	3,000	NT	NT	NA	300	NL
PCBs[h]	0.19	1.9	NT	5,000[i]	NA	0.1[j]	NL
1,2-Dichloroethene	85[k]	85[k]	85	NT	NA	224,000	85[l]
Trichloroethene	114[m]	114[m]	114	NT	NA	2,000[n]	114[l]
Vinyl Chloride	55	55[o]	55	200	NA	55[p]	55[l]
Antimony	500	5,000	NT	15,000[i]	43.3	500	500
Arsenic	36	360	NT	4,000	27.3	36	NL
Barium	504	5,040	NT	100,000[i]	504	NA	5,000
Beryllium	1.4	14	NT	750[i]	1.4	NA	1.4
Cadmium	9.3	93	NT	500	5.08	9.3	9.3
Chromium	15.7	157	NT	5,000	15.7	10,300	1,030[q]
Hexavalent Chromium	NT	NT	NT	5,000[i]	NA	50	50
Cobalt	20.8	208	NT	80,000[i]	20.8	NA	NL
Copper	28	280	NT	4,000	28	2.4	28
Lead	14.4	144	NT	1,500	14.4	8.1	14.4
Manganese	8,140	81,400	NT	NT	8,140	NT	8,140
Mercury	0.6	6	NT	50	0.60	0.03	0.6
Nickel	96.5	965	NT	2,000	96.5	8.2	96.5
Silver	7.43	74.3	NT	600	7.43	0.92	7.43
Thallium	13	130	NT	7,000[i]	13	2,130	213
Zinc	81	810	NT	7,000	75.7	81	75.7

Notes:

a: POC well trigger levels are based on the HGAL or the NAWQC, whichever is higher, unless otherwise noted (TtEMI, 1999). POC well trigger levels apply to POC wells, Post-Remedial action wells, and On- and Off-site Migration well IR07MW28A (TtEMI, 1999).

b: Sentinel well trigger levels are 10 times the POC well trigger levels, unless otherwise noted (TtEMI, 1999). Sentinel well trigger levels apply to sentinel wells and on- and off-site migration well IR18MW21A (TtEMI, 1999).

c: VOC well trigger levels are based on concentrations exceeding numerical criteria or exhibit a measured increase in the concentration of vinyl chloride, whichever occurs first.

d: Utility Line well trigger levels are based on Southeast Water Pollution Control Plant discharge requirements (TtEMI, 1999).

e: Concentrations are listed as reported in Table 5 of the final Parcel B RAMP (TtEMI, 1999), except for 1,2-dichloroethene, trichloroethene, chromium, and thallium. The NAWQCs listed in the 1999 RAMP for 1,2-dichloroethene, trichloroethene, chromium, and thallium were 1/10th the acute exposures; the

NAWQCs listed in this table are the only NAWQCs applicable, those for acute exposure. The value listed for hexavalent chromium is from Table 10 of the final Parcel B ROD (TtEMI, 1997).

f: Concentrations are listed as reported in Table 10 of the final Parcel B ROD (TtEMI, 1997).

g: TPH is not a Comprehensive Environmental Response, Compensation, and Liability Act contaminant. A trigger level of 1,250 µg/L was included in the RAMP for screening purposes (TtEMI, 1999). The trigger level specified in the TPH Corrective Action Plan for Parcel B (TtEMI, 2001) is 1,400 µg/L at the shoreline, increasing to 20,000 µg/L at a distance of 250 feet inland.

h: PCBs with applicable trigger levels include Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260. Note that if the lowest attainable laboratory quantitation limit (QL) is higher than the trigger level (as for the POC wells and one of the migration wells), the QL is used as the trigger level.

i: Soluble Threshold Limit Concentration, California Code of Regulations, Title 22, Section 66261.24(a)(2)(A) (TtEMI, 1999).

j: Great Lakes Water Quality Initiative Tier II level criterion for PCBs (TtEMI, 1999).

k: POC and sentinel well trigger levels for 1,2-dichloroethene were reduced from 22,400 and 224,000 µg/L, respectively, as listed in the Parcel B RAMP (TtEMI, 1999), to a trigger level of 85 µg/L for both wells, since 1,2-dichloroethene criteria are based on human health.

l: Human health-based criteria were developed for VOCs that may represent a human health risk to a future resident at Parcel B. Concentrations of these VOCs in groundwater correspond with an excess lifetime cancer risk of 10-6 and were selected as a groundwater remedial action objective for protection of human health based on groundwater-to-indoor-air modeling analysis (TtEMI, 1997).

m: POC and sentinel well trigger levels for trichloroethene were reduced from 200 and 2,000 µg/L, respectively, as listed in the Parcel B RAMP (TtEMI, 1999), to a trigger level of 114 µg/L for both wells, since trichloroethene criteria are based on human health.

n: NAWQC for trichloroethene is 1/10th acute exposures based on additional toxicity information for aquatic life (TtEMI, 1999).

o: The sentinel well trigger level for vinyl chloride was reduced from 550 µg/L, as listed in the Parcel B RAMP (TtEMI, 1999), to 55 µg/L, since the vinyl chloride criterion is based on human health.

p: Because no NAWQC have been specified for vinyl chloride, a concentration of 55 µg/L was used based on the human health risk assessment for VOCs (TtEMI, 1999).

q: The ROD trigger level is for chromium III, no ROD trigger level has been established for total chromium (chromium III plus chromium VI).

Acronyms/Abbreviations:

µg/L: Microgram per liter
HGAL: Hunters Point groundwater ambient level
NA: Not available
NAWQC: National Ambient Water Quality Criteria
NL: No trigger specified in ROD (TtEMI, 1997)
NT: No trigger specified in RAMP (TtEMI, 1999)
PAH: Polynuclear aromatic hydrocarbon
PCB: Polychlorinated biphenyl
POC: Point-of-compliance
RAMP: Remedial Action Monitoring Plan
ROD: Record of Decision
TtEMI: Tetra Tech EM Inc.
TPH-d: Total petroleum hydrocarbons as diesel
TPH-g: Total petroleum hydrocarbons as gasoline
VOC: Volatile organic compound

Table 4-8. Exceedances of water quality criteria (April-June 2007).

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR26MW47A	B	EE-05	Mercury	1.2		2	2	0.6	0.94
IR26MW49A	B	EE-05	Mercury	1.1		2	2	0.6	0.94
IR04MW13A	E-2	ILA	1,1-Dichloroethane	32		NL	5	NL	NL
IR04MW13A	E-2	ILA	1,1-Dichloroethene	26		7	6	NL	22,400
IR01MW60A	E-2	ILA	1,4-Dichlorobenzene	15		75	5	NL	129
IR01MW60A	E-2	ILA	1,4-Dichlorobenzene	11		75	5	NL	129
IR01MW64A	E-2	ILA	1,4-Dichlorobenzene	5.5	J	75	5	NL	129
IR01MW38A	E-2	ILA	Ammonia (as N)	12,900		NL	NL	NL	35
IR01MW48A	E-2	ILA	Ammonia (as N)	9,700		NL	NL	NL	35
IR01MWLF4B	E-2	ILA	Ammonia (as N)	7,100		NL	NL	NL	35
IR01MW42A	E-2	ILA	Ammonia (as N)	6,400		NL	NL	NL	35
IR01MW26B	E-2	ILA	Ammonia (as N)	5,000		NL	NL	NL	35
IR01MW05A	NNP	ILA	Ammonia (as N)	4,400		NL	NL	NL	35
IR01MW366B	E-2	ILA	Ammonia (as N)	2,800		NL	NL	NL	35
IR01MW09B	E-2	ILA	Ammonia (as N)	2,400		NL	NL	NL	35
IR01MW403A	NNP	ILA	Ammonia (as N)	2,400		NL	NL	NL	35
IR01MW60A	E-2	ILA	Ammonia (as N)	1,500		NL	NL	NL	35
IR01MW64A	E-2	ILA	Ammonia (as N)	1,500		NL	NL	NL	35
IR01MWLF2A	E-2	ILA	Ammonia (as N)	1,100		NL	NL	NL	35
IR01MW31A	E-2	ILA	Ammonia (as N)	1,000		NL	NL	NL	35
IR01MWLF1A	E-2	ILA	Ammonia (as N)	810		NL	NL	NL	35
IR01MW53B	E-2	ILA	Ammonia (as N)	760		NL	NL	NL	35
IR04MW13A	E-2	ILA	Ammonia (as N)	620		NL	NL	NL	35
IR01MW366A	E-2	ILA	Ammonia (as N)	580		NL	NL	NL	35
IR01MW10A	E-2	ILA	Ammonia (as N)	550		NL	NL	NL	35
IR01MW03A	NNP	ILA	Ammonia (as N)	480		NL	NL	NL	35
IR01MW02B	NNP	ILA	Ammonia (as N)	160	J	NL	NL	NL	35
IR01MWI-7	E-2	ILA	Antimony	6.4		6	6	43.26	NL
IR04MW36A	E-2	ILA	Arsenic	214		10	50	27.34	36

Table 4-8. Exceedances of water quality criteria (April-June 2007).

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR01MWLF1A	E-2	ILA	Arsenic	16.4		10	50	27.34	36
IR01MW48A	E-2	ILA	Barium	1,060		2,000	1000	504	NL
IR01MW38A	E-2	ILA	Barium	900		2,000	1,000	504	NL
IR01MW42A	E-2	ILA	Barium	768		2,000	1,000	504	NL
IR01MW62A	E-2	ILA	Barium	760	J	2,000	1,000	504	NL
IR01MW05A	NNP	ILA	Barium	553		2,000	1,000	504	NL
IR01MW60A	E-2	ILA	Barium	527		2,000	1,000	504	NL
IR01MW64A	E-2	ILA	Benzene	5.4	J	5	1	NL	510
IR01MW48A	E-2	ILA	Benzene	4.5		5	1	NL	510
IR01MW60A	E-2	ILA	Benzene	4.2		5	1	NL	510
IR01MW05A	NNP	ILA	Benzene	1.7		5	1	NL	510
IR01MW60A	E-2	ILA	Chlorobenzene	81		100	70	NL	129
IR01MW64A	E-2	ILA	Chlorobenzene	72	J	100	70	NL	129
IR04MW13A	E-2	ILA	cis-1,2-DCE	30		70	6	NL	22,400
IR01MW366A	E-2	ILA	Copper	38.5		1,300	1,300	28	3.1
IR01MW53B	E-2	ILA	Copper	9.5		1,300	1,300	28	3.1
IR01MWLF1A	E-2	ILA	Cyanide	29.9		200	200	NL	1
IR01MW63A	E-2	ILA	Cyanide	22.3		200	200	NL	1
IR01MW38A	E-2	ILA	Cyanide	6.9	J	200	200	NL	1
IR01MW403B	E-2	ILA	Freon 150 (1,2-DCA)	3.0		5	0.5	NL	11,300
IR04MW13A	E-2	ILA	Freon 150 (1,2-DCA)	0.9		5	0.5	NL	11,300
IR01MW366A	E-2	ILA	Mercury	8.5		2	2	0.6	0.94
IR01MW05A	NNP	ILA	Nickel	62.5		NL	100	96.5	8.2
IR01MW10A	E-2	ILA	Nickel	27.4		NL	100	96.5	8.2
IR04MW13A	E-2	ILA	Nickel	23.6	J	NL	100	96.5	8.2
IR01MW42A	E-2	ILA	Nickel	23.5		NL	100	96.5	8.2
IR01MW64A	E-2	ILA	Nickel	18.8		NL	100	96.5	8.2
IR01MW366A	E-2	ILA	Nickel	14		NL	100	96.5	8.2
IR01MW60A	E-2	ILA	Nickel	13.1		NL	100	96.5	8.2

Table 4-8. Exceedances of water quality criteria (April-June 2007).

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR75MW05B	NNP	ILA	Nickel	12.3		NL	100	96.5	8.2
IR01MWI-7	E-2	ILA	Nickel	11.2	J	NL	100	96.5	8.2
IR01MW31A	E-2	ILA	Nickel	8.7		NL	100	96.5	8.2
IR01MW31A	E-2	ILA	Selenium	55.5	J	50	50	14.5	71
IR75MW05B	NNP	ILA	Selenium	47.3	J	50	50	14.5	71
IR01MW403A	NNP	ILA	Selenium	41.8	J	50	50	14.5	71
IR01MW63A	E-2	ILA	Selenium	40.3	J	50	50	14.5	71
IR01MW366A	E-2	ILA	Selenium	29.6	J	50	50	14.5	71
IR01MW62A	E-2	ILA	Selenium	27.3	J	50	50	14.5	71
IR04MW13A	E-2	ILA	Selenium	26.6	J	50	50	14.5	71
IR04MW13A	E-2	ILA	Tetrachloroethylene	49		5	5	NL	450
IR04MW13A	E-2	ILA	TCE	43		5	5	NL	200
IR01MWI-7	E-2	ILA	Thallium	11.7	J	2	2	12.97	213
IR04MW13A	E-2	ILA	Vinyl chloride	3.1		2	0.5	NL	NL
IR02MW175A	E	IR-02	Arsenic	15.2		10	50	27.34	36
IR02MW301A	E	IR-02	Antimony	11.2		6	6	43.26	NL
IR02MW301A	E	IR-02	Selenium	20.8	J	50	50	14.5	71
IR02MW301A	E	IR-02	Thallium	14.2	J	2	2	12.97	213
IR07MW20A1	B	IR-07	Nickel	26.5	J	NL	100	96.5	8.2
IR07MW24A	B	IR-07	Nickel	23.8	J	NL	100	96.5	8.2
IR07MW21A1	B	IR-07	Nickel	22.4	J	NL	100	96.5	8.2
IR07MWS-4	B	IR-07	Nickel	8.3	J	NL	100	96.5	8.2
IR07MW26A	B	IR-07	Thallium	7.2	J	2	2	12.97	213
IR07MWS-2	B	IR-07	Thallium	2.8	J	2	2	12.97	213
IR07MW20A1	B	IR-07	Thallium	2.1	J	2	2	12.97	213
IR09PPY1	D	IR-09	Chromium	644		100	50	15.66	1,030
IR09MW63A	D	IR-09	Chromium	71.4		100	50	15.66	1,030
IR09MW35A	D	IR-09	Chromium	64.8		100	50	15.66	1,030
IR09MW37A	D	IR-09	Chromium	39.7		100	50	15.66	1,030

Table 4-8. Exceedances of water quality criteria (April-June 2007).

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR09MW51F	D	IR-09	Chromium	37.9		100	50	15.66	1,030
IR09MW62A	D	IR-09	Chromium	19.5		100	50	15.66	1,030
IR09MW38A	D	IR-09	Chromium	16.2		100	50	15.66	1,030
IR09PPY1	D	IR-09	Hexavalent chromium	601		NL	NL	NL	50
IR09MW63A	D	IR-09	Hexavalent chromium	61.8		NL	NL	NL	50
IR09MW35A	D	IR-09	Hexavalent chromium	59.4		NL	NL	NL	50
IR09MW51F	D	IR-09	TCE	29		5	5	NL	200
IR10MW59A	B	IR-10	cis-1,2-DCE	87		70	6	NL	22,400
IR10MW61A	B	IR-10	cis-1,2-DCE	22		70	6	NL	22,400
IR10MW13A1	B	IR-10	cis-1,2-DCE	15		70	6	NL	22,400
IR10MW33A	B	IR-10	cis-1,2-DCE	11		70	6	NL	22,400
IR10MW71A	B	IR-10	cis-1,2-DCE	7.5		70	6	NL	22,400
IR10MW71A	B	IR-10	TCE	11		5	5	NL	200
IR10MW59A	B	IR-10	TCE	5.7		5	5	NL	200
IR10MW13A1	B	IR-10	TCE	5.1		5	5	NL	200
IR10MW59A	B	IR-10	Vinyl chloride	2.6		2	0.5	NL	NL
IR10MW33A	B	IR-10	Vinyl chloride	1.2		2	0.5	NL	NL
IR26MW41A	B	IR-26	Nickel	35.9	J	NL	100	96.5	8.2
IR28MW188F	C	IR-28	Carbon Tetrachloride	51		5	0.5	NL	6,400
PA50MW07A	D	IR-32	Nickel	16.4		NL	100	96.5	8.2
PA50MW07A	D	IR-32	Selenium	19.9		50	50	14.5	71
PA36MW02A	E	IR-36	Nickel	18.5		NL	100	96.5	8.2
IR39MW33A	E	IR-39	Barium	2,250	J	2,000	1,000	504	NL
IR71MW03A	D	IR-71	Tetrachloroethylene	6.4		5	5	NL	450
IR71MW03A	D	IR-71	TCE	5.3		5	5	NL	200
IR02MW126A	E	NBFA	Copper	68.2		1,300	1,300	28	3.1
IR02MW149A	E	NBFA	Nickel	17.4		NL	100	96.5	8.2
IR02MW126A	E	NBFA	Selenium	28.3	J	50	50	14.5	71
IR02MW126A	E	NBFA	Vinyl chloride	0.64		2	0.5	NL	NL

Table 4-8. Exceedances of water quality criteria (April-June 2007).

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR02MW126A	E	NBFA	Zinc	241	J	NL	NL	75.68	81
IR03MW224A	E	ORPA	Antimony	6.1		6	6	43.26	NL
IR03MW218A2	E	ORPA	Barium	3,360	J	2,000	1,000	504	NL
IR03MW342A	E	ORPA	Barium	722	J	2,000	1,000	504	NL
IR03MW218A2	E	ORPA	Benzene	7.6		5	1	NL	510
IR03MW342A	E	ORPA	Benzene	1.7		5	1	NL	510
IR02MWB-1	E	ORPA	Nickel	21.1		NL	100	96.5	82
IR03MW218A2	E	ORPA	P-Dioxane	2.1		NL	2	NL	NL
IR03MW218A2	E	ORPA	Selenium	24.5	J	50	50	14.5	71
IR03MW342A	E	ORPA	Selenium	23.7	J	50	50	14.5	71
IR03MW224A	E	ORPA	Thallium	5.2	J	2	2	12.97	213
IR03MW218A2	E	ORPA	Vinyl chloride	0.88		2	0.5	NL	NL
PA50MW12A	D	Parcel D	Chromium	19.8		100	50	15.66	1,030
IR28MW136A	C	RU-C1	Benzene	1.5		5	1	NL	510
IR28MW125A	C	RU-C1	Chromium	120		100	50	15.66	1,030
IR28MW151A	C	RU-C1	cis-1,2-DCE	200		70	6	NL	22,400
IR28MW136A	C	RU-C1	cis-1,2-DCE	93		70	6	NL	22,400
IR28MW125A	C	RU-C1	Hexavalent chromium	114		NL	NL	NL	50
IR28MW171A	C	RU-C1	PCB-1260	0.35	J	0.5	0.5	NL	0.03
IR28MW136A	C	RU-C1	Tetrachloroethylene	8.7		5	5	NL	450
IR28MW151A	C	RU-C1	TCE	24		5	5	NL	200
IR28MW136A	C	RU-C1	TCE	6		5	5	NL	200
IR28MW151A	C	RU-C1	trans-1,2-DCE	23		100	10	NL	22,400
IR28MW151A	C	RU-C1	Vinyl chloride	180		2	0.5	NL	NL
IR28MW136A	C	RU-C1	Vinyl chloride	140		2	0.5	NL	NL
IR58MW31A	C	RU-C2	1,4-Dichlorobenzene	180		75	5	NL	129
IR58MW32B	C	RU-C2	1,4-Dichlorobenzene	9		75	5	NL	129
IR58MW31A	C	RU-C2	Benzene	22	J	5	1	NL	510
IR28MW190F	C	RU-C2	Carbon Tetrachloride	25		5	0.5	NL	6,400

Table 4-8. Exceedances of water quality criteria (April-June 2007).

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR28MW300F	C	RU-C2	Carbon Tetrachloride	6.4		5	0.5	NL	6,400
IR28MW397B	C	RU-C2	Carbon Tetrachloride	5.4		5	0.5	NL	6,400
IR58MW31F	C	RU-C2	Carbon Tetrachloride	1.1		5	0.5	NL	6,400
IR58MW31A	C	RU-C2	Chlorobenzene	1,700		100	70	NL	129
IR58MW25F	C	RU-C2	Chromium	64.5		100	50	15.66	1,030
IR58MW33B	C	RU-C2	cis-1,2-DCE	9.6		70	6	NL	22,400
IR58MW32B	C	RU-C2	cis-1,2-DCE	9		70	6	NL	22,400
IR28MW216F	C	RU-C2	cis-1,2-DCE	6.2		70	6	NL	22,400
IR58MW25F	C	RU-C2	Hexavalent chromium	56.1		NL	NL	NL	50
IR58MW32B	C	RU-C2	Tetrachloroethylene	25		5	5	NL	450
IR28MW300F	C	RU-C2	TCE	9.4		5	5	NL	200
IR28MW189F	C	RU-C2	TCE	7.0		5	5	NL	200
IR58MW32B	C	RU-C2	TCE	6.5		5	5	NL	200
IR58MW31A	C	RU-C2	Vinyl chloride	120		2	0.5	NL	NL
IR28MW407	C	RU-C4	1,4-Dichlorobenzene	22		75	5	NL	129
IR28MW211F	C	RU-C4	Benzene	1.3		5	1	NL	510
IR28MW272F	C	RU-C4	Carbon Tetrachloride	1.3		5	0.5	NL	6,400
IR28MW315F	C	RU-C4	Carbon Tetrachloride	1.1		5	0.5	NL	6,400
IR28MW211F	C	RU-C4	cis-1,2-DCE	67		70	6	NL	22,400
IR28MW406	C	RU-C4	cis-1,2-DCE	15		70	6	NL	22,400
IR28MW211F	C	RU-C4	Freon 150 (1,2-DCA)	21		5	0.5	NL	11,300
IR28MW407	C	RU-C4	Freon 150 (1,2-DCA)	1.3		5	0.5	NL	11,300
IR28MW406	C	RU-C4	TCE	130		5	5	NL	200
IR28MW272F	C	RU-C4	TCE	23		5	5	NL	200
IR28MW350F	C	RU-C4	TCE	16		5	5	NL	200
IR28MW355F	C	RU-C4	TCE	15		5	5	NL	200
IR28MW211F	C	RU-C4	TCE	7.1		5	5	NL	200
IR28MW211F	C	RU-C4	Vinyl chloride	25		2	0.5	NL	NL
IR28MW407	C	RU-C4	Vinyl chloride	8.8		2	0.5	NL	NL

Table 4-8. Exceedances of water quality criteria (April-June 2007).

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR06MW59A1	C	RU-C5	Benzene	1.3	J	5	1	NL	510
IR06MW54F	C	RU-C5	Carbon Tetrachloride	4.1		5	0.5	NL	6,400
IR06MW55F	C	RU-C5	Carbon Tetrachloride	0.56		5	0.5	NL	6,400
IR06MW54F	C	RU-C5	Chromium	75.6		100	50	15.66	1,030
IR25MW16A	C	RU-C5	cis-1,2-DCE	100		70	6	NL	22,400
IR06MW59A1	C	RU-C5	cis-1,2-DCE	62		70	6	NL	22,400
IR06MW35A	C	RU-C5	cis-1,2-DCE	10		70	6	NL	22,400
IR25MW17A	C+	RU-C5	Freon 150 (1,2-DCA)	0.9		5	0.5	NL	11,300
IR06MW54F	C	RU-C5	Hexavalent chromium	66.8		NL	NL	NL	50
IR06MW59A1	C	RU-C5	Tetrachloroethylene	71		5	5	NL	450
IR06MW59A1	C	RU-C5	TCE	230		5	5	NL	200
IR25MW16A	C	RU-C5	TCE	150		5	5	NL	200
IR06MW32A	C	RU-C5	TCE	12		5	5	NL	200
IR25MW16A	C	RU-C5	trans-1,2-DCE	11		100	10	NL	22,400
IR06MW40A	C	RU-C5	Vinyl chloride	150		2	0.5	NL	NL
IR06MW59A1	C	RU-C5	Vinyl chloride	23		2	0.5	NL	NL
IR25MW16A	C	RU-C5	Vinyl chloride	2.8		2	0.5	NL	NL
IR06MW32A	C	RU-C5	Vinyl chloride	1.6		2	0.5	NL	NL
IR06MW35A	C	RU-C5	Vinyl chloride	0.53		2	0.5	NL	NL

Notes:
Shaded values indicate that criterion was exceeded.

Parcel:
- **B+: Well is physically located in Parcel B, is assigned in the SAP to Parcel C, and is not assigned in the RAMP.**
- **C+: Well is physically located in Parcel C, is assigned in the SAP to Parcel C, and is assigned in the RAMP to Parcel B.**
- **NNP: Non-Navy property, reported by SAP-assigned parcel**

Validation Qualifiers:
- **J: Detected below the practical quantitation limit but above the method detection limit; estimated value**
- **Blank cell: no qualifier was applicable to the analysis.**

Acronyms/Abbreviations:
- **EE-05: Exploratory Excavation-05**
- **HGAL: Hunters Point Groundwater Ambient Level**
- **ILA: Industrial Landfill Area**
- **IR: Installation Restoration**
- **MCL: Maximum Contaminant Level**
- **NAWQC: National Ambient Water Quality Criteria**
- **NL: No exceedance Listed**
- **NBFA: Northwest Bay Fill Area**
- **ORPA: Oil Recovery Pond Area**
- **RU: Remedial Unit**
- **ug/L: Micrograms per liter**

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Table 4-9. Exceedances of water quality criteria (July-September 2007)

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR26MW47A	B	EE-05	Mercury	2.7		2	2	0.6	0.94
IR26MW49A	B	EE-05	Mercury	1.8		2	2	0.6	0.94
IR04MW13A	E-2	ILA	1,1-Dichloroethane	42		NL	5	NL	NL
IR04MW13A	E-2	ILA	1,1-Dichloroethene	42		7	6	NL	22,400
IR01MW60A	E-2	ILA	1,4-Dichlorobenzene	15		75	5	NL	129
IR01MW60A	E-2	ILA	1,4-Dichlorobenzene	8.7	J	75	5	NL	129
IR01MW48A	E-2	ILA	Ammonia (as N)	8,700		NL	NL	NL	35
IR01MW60A	E-2	ILA	Ammonia (as N)	6,700		NL	NL	NL	35
IR01MW42A	E-2	ILA	Ammonia (as N)	5,300		NL	NL	NL	35
IR01MW366B	E-2	ILA	Ammonia (as N)	3,600		NL	NL	NL	35
IR01MW38A	E-2	ILA	Ammonia (as N)	3,500		NL	NL	NL	35
IR01MWLF4B	E-2	ILA	Ammonia (as N)	3,100		NL	NL	NL	35
IR01MW31A	E-2	ILA	Ammonia (as N)	3,000		NL	NL	NL	35
IR01MWLF1A	E-2	ILA	Ammonia (as N)	2,400		NL	NL	NL	35
IR01MW05A	NNP	ILA	Ammonia (as N)	2,400		NL	NL	NL	35
IR01MW26B	E-2	ILA	Ammonia (as N)	2,000		NL	NL	NL	35
IR01MW64A	E-2	ILA	Ammonia (as N)	1,900		NL	NL	NL	35
IR01MWLF2A	E-2	ILA	Ammonia (as N)	1,600		NL	NL	NL	35
IR01MW09B	E-2	ILA	Ammonia (as N)	1,400		NL	NL	NL	35
IR01MW02B	NNP	ILA	Ammonia (as N)	1,400		NL	NL	NL	35
IR04MW36A	E-2	ILA	Ammonia (as N)	1,200		NL	NL	NL	35
IR01MW403A	NNP	ILA	Ammonia (as N)	1,200		NL	NL	NL	35
IR01MW03A	NNP	ILA	Ammonia (as N)	820		NL	NL	NL	35
IR01MW10A	E-2	ILA	Ammonia (as N)	530		NL	NL	NL	35
IR01MW53B	E-2	ILA	Ammonia (as N)	400		NL	NL	NL	35
IR04MW13A	E-2	ILA	Ammonia (as N)	310	J	NL	NL	NL	35
IR75MW05B	NNP	ILA	Ammonia (as N)	190	J	NL	NL	NL	35
IR04MW36A	E-2	ILA	Arsenic	244		10	50	27-34	36

Table 4-9. Exceedances of water quality criteria (July-September 2007)

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR01MWLF1A	E-2	ILA	Arsenic	15.4		10	50	27.34	36
IR01MW366B	E-2	ILA	Arsenic	15.2		10	50	27.34	36
IR01MW62A	E-2	ILA	Barium	1,240		2,000	1,000	504	NL
IR01MW38A	E-2	ILA	Barium	986		2,000	1,000	504	NL
IR01MW48A	E-2	ILA	Barium	911		2,000	1,000	504	NL
IR01MW42A	E-2	ILA	Barium	711		2,000	1,000	504	NL
IR01MW60A	E-2	ILA	Barium	646		2,000	1,000	504	NL
IR01MW05A	NNP	ILA	Barium	571		2,000	1,000	504	NL
IR01MW64A	E-2	ILA	Benzene	2.6		5	1	NL	510
IR01MW60A	E-2	ILA	Benzene	2.5		5	1	NL	510
IR01MW48A	E-2	ILA	Benzene	1.6	J	5	1	NL	510
IR01MW05A	NNP	ILA	Benzene	1.5		5	1	NL	510
IR01MW60A	E-2	ILA	Chlorobenzene (MCB)	80		100	70	NL	129
IR01MW03A	NNP	ILA	Chromium	17.3	J	100	50	15.66	1,030
IR75MW05B	NNP	ILA	Chromium	17.1		100	50	15.66	1,030
IR04MW13A	E-2	ILA	cis-1,2-dce	36		70	6	NL	22,400
IR01MW53B	E-2	ILA	Copper	10.7		1,300	1,300	28	3.1
IR01MWLF1A	E-2	ILA	Cyanide	25.1		200	200	NL	1
IR01MW63A	E-2	ILA	Cyanide	18.4		200	200	NL	1
IR01MW62A	E-2	ILA	Cyanide	10		200	200	NL	1
IR01MW38A	E-2	ILA	Cyanide	7.8	J	200	200	NL	1
IR01MW60A	E-2	ILA	Cyanide	5.1	J	200	200	NL	1
IR01MW403B	E-2	ILA	Freon 150 (1,2-DCA)	2.0		5	0.5	NL	11,300
IR04MW13A	E-2	ILA	Freon 150 (1,2-DCA)	1.9		5	0.5	NL	11,300
IR01MW05A	NNP	ILA	Nickel	55.6		NL	100	96.5	8.2
IR01MW10A	E-2	ILA	Nickel	28.2		NL	100	96.5	8.2
IR04MW13A	E-2	ILA	Nickel	25.3		NL	100	96.5	8.2
IR01MW42A	E-2	ILA	Nickel	18.7		NL	100	96.5	8.2

Table 4-9. Exceedances of water quality criteria (July-September 2007)

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR01MW64A	E-2	ILA	Nickel	15.9		NL	100	96.5	8.2
IR75MW05B	NNP	ILA	Nickel	13.8		NL	100	96.5	8.2
IR01MW60A	E-2	ILA	Nickel	9.5		NL	100	96.5	8.2
IR04MW13A	E-2	ILA	TCE	57		5	5	NL	200
IR04MW13A	E-2	ILA	Tetrachloroethylene (PCE)	56		5	5	NL	450
IR01MWI-8	E-2	ILA	Thallium	7.0	J	2	2	12.97	213
IR01MW42A	E-2	ILA	Thallium	6.1		2	2	12.97	213
IR04MW13A	E-2	ILA	Vinyl chloride	4.1		2	0.5	NL	NL
IR04MW37A	E	IR-04	TCE	5.3	J	5	5	NL	200
IR05MW85A	E	IR-05	Mercury	0.77		2	2	0.6	0.94
IR06MW42A	C+	IR-06	2-Methylnaphthalene	39		NL	NL	NL	30
IR06MW42A	C+	IR-06	Naphthalene	300		NL	NL	NL	235
IR06MW42A	C+	IR-06	Thallium	27.2	J	2	2	12.97	213
IR07MW24A	B	IR-07	Beryllium	2.4	J	4	4	1.4	NL
IR07MW28A	NNP	IR-07	Thallium	45	J	2	2	12.97	213
IR09PPY1	D	IR-09	Chromium	506		100	50	15.66	1,030
IR09MW35A	D	IR-09	Chromium	66.1		100	50	15.66	1,030
IR09MW63A	D	IR-09	Chromium	64.8		100	50	15.66	1,030
IR09MW51F	D	IR-09	Chromium	45		100	50	15.66	1,030
IR09MW37A	D	IR-09	Chromium	29.2	J	100	50	15.66	1,030
IR09PPY1	D	IR-09	Hexavalent chromium	489		NL	NL	NL	50
IR09MW35A	D	IR-09	Hexavalent chromium	67		NL	NL	NL	50
IR09MW63A	D	IR-09	Hexavalent chromium	60.8		NL	NL	NL	50
IR09MW51F	D	IR-09	TCE	37		5	5	NL	200
IR10MW59A	B	IR-10	cis-1,2-dce	92		70	6	NL	22,400
IR10MW13A1	B	IR-10	cis-1,2-dce	11		70	6	NL	22,400
IR10MW61A	B	IR-10	cis-1,2-dce	8.7		70	6	NL	22,400
IR10MW59A	B	IR-10	Vinyl chloride	30		2	0.5	NL	NL

Table 4-9. Exceedances of water quality criteria (July-September 2007)

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR10MW61A	B	IR-10	Vinyl chloride	27		2	0.5	NL	NL
IR28MW188F	C	IR-28	Carbon Tetrachloride	25		5	0.5	NL	6,400
PA50MW07A	D	IR-32	Nickel	13.3		NL	100	96.5	8.2
IR39MW33A	E	IR-39	Barium	2,200		2,000	1,000	504	NL
IR46MW37A	B	IR-46	Silver	7.2	J	100	100	7.43	0.19
IR71MW03A	D	IR-71	TCE	7.4		5	5	NL	200
IR71MW03A	D	IR-71	Tetrachloroethylene (PCE)	7.6		5	5	NL	450
IR02MW126A	E	NBFA	Barium	665	J	2,000	1,000	504	NL
IR02MW126A	E	NBFA	Copper	31.9		1,300	1,300	28	3.1
IR02MW149A	E	NBFA	Nickel	16.6	J	NL	100	96.5	8.2
IR02MW126A	E	NBFA	Vinyl chloride	0.58		2	0.5	NL	NL
IR02MW126A	E	NBFA	Zinc	206		NL	NL	75.68	81
IR02MWB-1	E	ORPA	Antimony	7.2		6	6	43.26	NL
IR02MWB-1	E	ORPA	Arsenic	32.6		10	50	27.34	36
IR03MW218A2	E	ORPA	Barium	3,960	J	2,000	1,000	504	NL
IR03MW342A	E	ORPA	Barium	1,250		2,000	1,000	504	NL
IR03MW218A2	E	ORPA	Benzene	10	J	5	1	NL	510
IR03MW342A	E	ORPA	Benzene	2.4		5	1	NL	510
IR02MWB-1	E	ORPA	Copper	4.6	J	1,300	1,300	28	3.1
IR02MWB-1	E	ORPA	Nickel	29.2	J	NL	100	96.5	8.2
IR03MW218A2	E	ORPA	P-Dioxane	2.7		NL	2	NL	NL
IR03MW218A2	E	ORPA	Vinyl chloride	0.87	J	2	0.5	NL	NL
IR28MW125A	C	RU-C1	Chromium	114		100	50	15.66	1,030
IR28MW151A	C	RU-C1	cis-1,2-dce	64		70	6	NL	22,400
IR28MW125A	C	RU-C1	Hexavalent chromium	105		NL	NL	NL	50
IR28MW151A	C	RU-C1	trans-1,2-DCE	42		100	10	NL	22,400
IR28MW151A	C	RU-C1	Vinyl chloride	210	J	2	0.5	NL	NL
IR58MW31A	C	RU-C2	1,4-Dichlorobenzene	30		75	5	NL	129

Table 4-9. Exceedances of water quality criteria (July-September 2007)

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR58MW32B	C	RU-C2	1,4-Dichlorobenzene	11		75	5	NL	129
IR58MW31A	C	RU-C2	Benzene	3.0		5	1	NL	510
IR28MW190F	C	RU-C2	Carbon Tetrachloride	26	J	5	0.5	NL	6,400
IR28MW300F	C	RU-C2	Carbon Tetrachloride	11		5	0.5	NL	6,400
IR28MW397B	C	RU-C2	Carbon Tetrachloride	5.2	J	5	0.5	NL	6,400
IR58MW31F	C	RU-C2	Carbon Tetrachloride	0.67		5	0.5	NL	6,400
IR58MW31A	C	RU-C2	Chlorobenzene (MCB)	270		100	70	NL	129
IR58MW25F	C	RU-C2	Chromium	63.9		100	50	15.66	1,030
IR58MW33B	C	RU-C2	cis-1,2-dce	17		70	6	NL	22,400
IR28MW216F	C	RU-C2	cis-1,2-dce	6.8		70	6	NL	22,400
IR58MW25F	C	RU-C2	Hexavalent chromium	50.4		NL	NL	NL	50
IR58MW31A	C	RU-C2	PCB-1260	0.26	J	0.5	0.5	NL	0.03
IR28MW300F	C	RU-C2	TCE	12		5	5	NL	200
IR28MW189F	C	RU-C2	TCE	5.2	J	5	5	NL	200
IR58MW32B	C	RU-C2	Tetrachloroethylene (PCE)	14		5	5	NL	450
IR58MW31A	C	RU-C2	Vinyl chloride	16		2	0.5	NL	NL
IR28MW407	C	RU-C4	1,4-Dichlorobenzene	14		75	5	NL	129
IR28MW211F	C	RU-C4	Benzene	1.2	J	5	1	NL	510
IR28MW272F	C	RU-C4	Carbon Tetrachloride	0.93	J	5	0.5	NL	6,400
IR28MW406	C	RU-C4	Carbon Tetrachloride	0.92		5	0.5	NL	6,400
IR28MW315F	C	RU-C4	Carbon Tetrachloride	0.57	J	5	0.5	NL	6,400
IR28MW211F	C	RU-C4	cis-1,2-dce	67		70	6	NL	22,400
IR28MW406	C	RU-C4	cis-1,2-dce	27		70	6	NL	22,400
IR28MW407	C	RU-C4	cis-1,2-dce	12		70	6	NL	22,400
IR28MW211F	C	RU-C4	Freon 150 (1,2-DCA)	23	J	5	0.5	NL	11,300
IR28MW407	C	RU-C4	Freon 150 (1,2-DCA)	5.4		5	0.5	NL	11,300
IR28MW406	C	RU-C4	TCE	190		5	5	NL	200
IR28MW350F	C	RU-C4	TCE	41		5	5	NL	200

Table 4-9. Exceedances of water quality criteria (July-September 2007)

Well ID	Parcel	Area of Concern	Analyte	Result	Validation Qualifier	Fed MCL (ug/L)	Cal MCL (ug/L)	HGAL (ug/L)	NAWQC (ug/L)
IR28MW272F	C	RU-C4	TCE	19	J	5	5	NL	200
IR28MW312F	C	RU-C4	TCE	14		5	5	NL	200
IR28MW355F	C	RU-C4	TCE	14		5	5	NL	200
IR28MW211F	C	RU-C4	TCE	6.7	J	5	5	NL	200
IR28MW211F	C	RU-C4	Vinyl chloride	78	J	2	0.5	NL	NL
IR28MW407	C	RU-C4	Vinyl chloride	53		2	0.5	NL	NL
IR06MW59A1	C	RU-C5	Benzene	1.5		5	1	NL	510
IR06MW54F	C	RU-C5	Carbon Tetrachloride	4.7		5	0.5	NL	6,400
IR06MW54F	C	RU-C5	Chromium	81.5		100	50	15.66	1,030
IR06MW59A1	C	RU-C5	cis-1,2-dce	100		70	6	NL	22,400
IR25MW16A	C	RU-C5	cis-1,2-dce	98		70	6	NL	22,400
IR06MW35A	C	RU-C5	cis-1,2-dce	11	J	70	6	NL	22,400
IR25MW17A	C+	RU-C5	Freon 150 (1,2-DCA)	1.9		5	0.5	NL	11,300
IR06MW54F	C	RU-C5	Hexavalent chromium	62.4		NL	NL	NL	50
IR25MW17A	C+	RU-C5	Nickel	9.2		NL	100	96.5	8.2
IR06MW59A1	C	RU-C5	TCE	140		5	5	NL	200
IR25MW16A	C	RU-C5	TCE	140		5	5	NL	200
IR06MW35A	C	RU-C5	TCE	5.7	J	5	5	NL	200
IR06MW32A	C	RU-C5	TCE	5.1		5	5	NL	200
IR06MW59A1	C	RU-C5	Tetrachloroethylene (PCE)	71		5	5	NL	450
IR06MW40A	C	RU-C5	Vinyl chloride	130	J	2	0.5	NL	NL
IR06MW59A1	C	RU-C5	Vinyl chloride	20		2	0.5	NL	NL
IR25MW16A	C	RU-C5	Vinyl chloride	2.7		2	0.5	NL	NL
IR06MW32A	C	RU-C5	Vinyl chloride	1.3		2	0.5	NL	NL
IR06MW35A	C	RU-C5	Vinyl chloride	0.65	J	2	0.5	NL	NL

Notes: **Shaded values indicate exceedance of criterion.**

Parcel:
NNP: Non-Navy property, reported by SAP assigned parcel

Validation Code (data qualifiers):
J: Detected below the practical quantitation limit but above the method detection limit; estimated value

Acronyms/Abbreviations:
HGAL: Hunters Point Groundwater Ambient Level
ILA: Industrial Landfill Area
IR: Installation Restoration
MCL: Maximum Contaminant Level
NAWQC: National Ambient Water Quality Criteria
NBFA: Northwest Bay Fill Area
NL: Not Listed
ORPA: Oil Recovery Pond Area
RU: Remedial Unit
ug/L: Micrograms per liter

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Table 4-10. NAPL measurements (August 2, 2007).

Monitoring Well ID	Depth to LNAPL (ft btoc)	Depth to Water (ft btoc)	LNAPL Thickness (ft)	Depth to DNAPL (ft btoc)	DNAPL Thickness (ft)	Well Total Depth (ft btoc)
Parcel C						
IR25MW11A	6.19	6.40	0.21	NP	0.00	18.82
IR25MW54A	NP	7.13	0.00	NP	0.00	16.50
IR25MW902B	NP	8.36	0.00	NP	0.00	28.36
IR-03 Area in Parcel E						
IR02MW146A	10.89	14.20	3.31	NP	0.00	22.60
IR02MW173A	10.02	12.32	2.30	NP	0.00	21.30
IR03MW218A1	NP	11.35	0.00	NP	0.00	14.60
IR03MW218A2	NP	11.97	0.00	NP	0.00	NM
IR03MW225A	11.60	16.70	5.10	NP	0.00	23.52
IR03MW226A	11.78	12.05	0.27	NP	0.00	23.89
IR03MW369A	9.05	9.10	0.05	NP	0.00	22.05
IR03MW370A	8.67	13.20	4.53	NP	0.00	22.40
IR03MW371A	NP	11.10	0.00	NP	0.00	27.10
IR03MWO-1	NP	11.46	0.00	NP	0.00	22.29
IR03MWO-2	11.20	12.70	1.50	NP	0.00	22.10
IR03MWO-3	10.70	16.35	5.65	NP	0.00	19.00
Central Portion of Parcel E						
IR12MW21A	9.88	9.89	0.01	NP	0.00	22.35
IR39MW21A	NP	8.56	0.00	NP	0.00	15.18
PA36MW08A	NP	7.82	0.00	NP	0.00	21.28

Notes:

DNAPL: dense non-aqueous phase liquid
DTW: depth to water
ft btoc: feet below top of casing
LNAPL: light non-aqueous phase liquid
NAPL: non-aqueous phase liquid
NP: not present
NM: not measured

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Table 4-11. SAP deviations for 2Q2007.

Well ID	Parcel	SAP Deviations and Justifications		
		Justification for Water Level Not Measured	**Justification for Well Not Sampled**	**Field Procedure Deviation**
IR01MW17B	E-2	no deviation	obstructed – casing kinked	no deviation
IR01MW367A	E-2	casing obstructed - gravel	casing obstructed - gravel	N/A
IR01MW58A	E-2	casing damaged	casing damaged	N/A
IR01MWI-6	E-2	N/A	casing damaged	N/A
IR01MWLF4A	E-2	inaccessible – plastic sheeting	inaccessible – plastic sheeting; casing damaged	N/A
IR02MW114A2	E	casing damaged	N/A	N/A
IR02MW146A	E	NAPL	N/A	N/A
IR02MW173A	E	NAPL	N/A	N/A
IR02MW183A	E	inaccessible – soil pile	N/A	N/A
IR02MW206A2	E	inaccessible; casing damaged	inaccessible; casing damaged	N/A
IR02MWB-2	E	no deviation	obstructed – bent casing	no deviation
IR02MWB-5	E	no deviation	obstructed – bent casing	no deviation
IR02MWC5-W	E	inaccessible - buried	inaccessible - buried	N/A
IR03MW218A1	E	NAPL	N/A	N/A
IR03MW218A2	E	no deviation	no deviation	pump placed 0.3 ft above TOS
IR03MW225A	E	NAPL	N/A	N/A
IR03MW226A	E	NAPL	N/A	N/A
IR03MW369A	E	NAPL	NAPL	N/A
IR03MW370A	E	NAPL	NAPL	N/A
IR03MW371A	E	NAPL	NAPL	N/A
IR03MWO-1	E	NAPL	N/A	N/A
IR03MWO-2	E	NAPL	N/A	N/A
IR03MWO-3	E	NAPL	N/A	N/A
IR04MW31A	E-2	inaccessible – plastic sheeting	N/A	N/A
IR06MW60A	B	inaccessible - debris	inaccessible –debris	N/A
IR07MW19A	B	inaccessible - trench	inaccessible - trench	N/A
IR07MW93A	B	inaccessible – laydown area	N/A	N/A
IR07MW94A	B	inaccessible – laydown area	N/A	N/A
IR10MW28A	B	no deviation	insufficient water	no deviation
IR10MW32A	B	inaccessible - debris	N/A	N/A
IR10MW81A	B	inaccessible - construction	no deviation	no deviation
IR10MW82A	B	inaccessible - construction	no deviation	no deviation

Table 4-11. SAP deviations for 2Q2007.

Well ID	Parcel	SAP Deviations and Justifications		
		Justification for Water Level Not Measured	**Justification for Well Not Sampled**	**Field Procedure Deviation**
IR11MW25A	E	casing damaged	casing damaged	N/A
IR12MW11A	E-2	inaccessible – plastic sheeting	N/A	N/A
IR12MW17A	E	inaccessible – plastic sheeting; casing damaged	inaccessible – plastic sheeting; casing damaged	N/A
IR12MW21A	E	NAPL	NAPL	N/A
IR18MW100B	B	inaccessible – laydown area	N/A	N/A
IR18MW101B	B	inaccessible – laydown area	N/A	N/A
IR22MW07A	D	inaccessible – locked gate	N/A	N/A
IR25MW11A	C	NAPL	N/A	N/A
IR25MW42B	C	casing damaged	N/A	N/A
IR25MW60A1	C	no deviation	casing obstructed - gravel	no deviation
IR28MW933F	C	obstructed – dedicated sampling equipment in well	N/A	N/A
IR28MW934F	C	obstructed – dedicated sampling equipment in well	N/A	N/A
IR36MW125A	E	no deviation	insufficient water	no deviation
IR39MW21A	E	no deviation	NAPL	no deviation
IR46MW39A	B	inaccessible – trenching equipment	N/A	N/A
PA32MW04A	D	inaccessible – locked gate	N/A	N/A
PA36MW08A	E	no deviation	NAPL	no deviation

Notes:
N/A: Not applicable; sampling or water level measurement not required, or could not be conducted due to deviation.
NAPL: Non-aqueous phase liquid present or historically present.
SAP: Sampling and Analysis Plan (TtEMI 2004); includes SAP addendum no. 1 dated April 2007.
TOS: Top of Screen

Table 4-12. SAP deviations for 3Q2007.

Well ID	Parcel	SAP Deviations and Justifications		
		Justification for Water Level Not Measured	**Justification for Well Not Sampled**	**Field Procedure Deviation**
IR01MW17B	E-2	no deviation	obstructed - kinked casing	no deviation
IR01MW366A	E-2	no deviation	insufficient water	no deviation
IR01MW367A	E-2	casing obstructed - gravel	casing obstructed - gravel	N/A
IR01MW53B	E-2	no deviation	no deviation	dissolved oxygen did not stabilize; purging stopped at 8 Liters
IR01MW58A	E-2	casing damaged	casing damaged	N/A
IR01MWI-6	E-2	N/A	casing damaged	N/A
IR01MWLF4A	E-2	no deviation	inaccessible – plastic sheeting	no deviation
IR02MW114A2	E	casing damaged	N/A	N/A
IR02MW146A	E	NAPL	N/A	N/A
IR02MW173A	E	NAPL	N/A	N/A
IR02MW183A	E	casing damaged	N/A	N/A
IR02MW206A2	E	inaccessible; casing damaged	inaccessible; casing damaged	N/A
IR02MWB-2	E	no deviation	obstructed - bent casing	no deviation
IR02MWB-5	E	no deviation	obstructed - bent casing	no deviation
IR02MWC5-W	E	inaccessible - buried	inaccessible - buried	N/A
IR03MW218A1	E	NAPL	N/A	N/A
IR03MW218A2	E	no deviation	no deviation	pH did not stabilize; purging stopped at 8 Liters
IR03MW225A	E	NAPL	N/A	N/A
IR03MW226A	E	NAPL	N/A	N/A
IR03MW369A	E	NAPL	NAPL	N/A
IR03MW370A	E	NAPL	NAPL	N/A
IR03MW371A	E	NAPL	NAPL	N/A
IR03MWO-1	E	NAPL	N/A	N/A
IR03MWO-2	E	NAPL	N/A	N/A
IR03MWO-3	E	NAPL	N/A	N/A
IR06MW60A	B	no deviation	inaccessible - debris	no deviation
IR07MW19A	B	inaccessible - trench	inaccessible - trench	N/A
IR07MW20A1	B	no deviation	inaccessible - trench	no deviation
IR07MW93A	B	inaccessible – laydown area	N/A	N/A
IR07MW94A	B	inaccessible – laydown area	N/A	N/A
IR07MWS-2	B	inaccessible	N/A	N/A
IR09MW62A	D	no deviation	no deviation	specific conductance did not stabilize; purging stopped at 13 Liters
IR10MW28A	B	no deviation	insufficient water	no deviation
IR10MW14A	B	inaccessible - buried	inaccessible - buried	N/A
IR10MW81A	B	no deviation	no deviation	specific conductance did not stabilize; purging stopped at 8 Liters
IR11MW25A	E	casing damaged	casing damaged	N/A
IR11MW27A	E	no deviation	insufficient water	no deviation
IR12MW11A	E-2	inaccessible – plastic sheeting	N/A	N/A

Table 4-12. SAP deviations for 3Q2007.

Well ID	Parcel	SAP Deviations and Justifications		
		Justification for Water Level Not Measured	**Justification for Well Not Sampled**	**Field Procedure Deviation**
IR12MW17A	E	inaccessible – plastic sheeting; casing damaged	inaccessible – plastic sheeting; casing damaged	N/A
IR12MW21A	E	NAPL	NAPL	N/A
IR18MW100B	B	inaccessible – laydown area	N/A	N/A
IR18MW101B	B	inaccessible – laydown area	N/A	N/A
IR18MW21A	B	inaccessible – laydown area	no deviation	no deviation
IR20MW17A	B	inaccessible - debris	N/A	N/A
IR24MW06A	C	casing damaged	N/A	N/A
IR25MW11A	C	NAPL	N/A	N/A
IR25MW42B	C	decommissioned	N/A	N/A
IR25MW60A1	C	no deviation	casing obstructed - gravel	no deviation
IR28MW136A	C	no deviation	inaccessible	no deviation
IR28MW150A	C	no deviation	no deviation	Readings were not obtained at the required 1-Liter frequency; however, 8 Liters were purged before sampling.
IR28MW169A	C	no deviation	inaccessible	no deviation
IR28MW287A	C	no deviation	no deviation	specific conductance did not stabilize; purging stopped at 8 Liters.
IR28MW933F	C	obstructed – dedicated sampling equipment in well	N/A	N/A
IR28MW934F	C	obstructed – dedicated sampling equipment in well	N/A	N/A
IR30MW03F	C	inaccessible – soil pile	N/A	N/A
IR33MW62A	D	decommissioned	N/A	N/A
IR36MW125A	E	no deviation	insufficient water	no deviation
IR39MW21A	E	no deviation	NAPL	no deviation
IR46MW39A	B	inaccessible – trenching equipment	N/A	N/A
PA18MW08A	NNP	decommissioned	N/A	N/A
PA36MW08A	E	no deviation	NAPL	no deviation
PA50MW11A	D	no deviation	inaccessible - trench	no deviation
UT03MW11A	B	inaccessible - trench	inaccessible - trench	N/A
UT03MW12A	B	decommissioned	N/A	N/A

Notes:
N/A: Not applicable; sampling or water level measurement not required, or could not be conducted due to deviation.
NAPL: Non-aqueous phase liquid present or historically present.
SAP: Sampling and Analysis Plan (TtEMI 2004); includes SAP addendum no. 1 dated April 2007.

Table 4-13. SAP deviation tracking for wells not sampled and not measured.

Well ID	Parcel	SAP Requirement Affected	4Q2006 Reason for Deviation	1Q2007 Reason for Deviation	2Q2007 Reason for Deviation	3Q2007 Reason for Deviation	Corrective Action
IR01MW17B	E	sampling	physical condition	physical condition	physical condition	physical condition	Remove from program
IR01MW366A	E-2	sampling	none	none	none	insufficient water – historically has very slow recharge	Remove from program
IR01MW367A	E-2	DTW and sampling	physical condition	physical condition	physical condition	physical condition	Remove from program
IR01MW58A	E-2	DTW and sampling	physical condition	physical condition	physical condition	physical condition	Remove from program
IR01MWI-6	E-2	sampling	physical condition	physical condition	physical condition	physical condition	Remove from program
IR01MWLF4A	E-2	DTW and sampling	inaccessible	inaccessible and physical condition	inaccessible and physical condition	inaccessible	Remove from program
IR02MW114A2	E	DTW	inaccessible	physical condition	physical condition	physical condition	Remove from program
IR02MW183A	E	DTW	inaccessible	inaccessible	inaccessible	physical condition	Remove from program
IR02MW206A2	E	DTW and sampling	physical condition	physical condition	inaccessible and physical condition	inaccessible and physical condition	Remove from program
IR02MWB-2	E	sampling	physical condition	physical condition	physical condition	physical condition	Remove from program
IR02MWB-5	E	sampling	physical condition	physical condition	physical condition	physical condition	Remove from program
IR02MWC5-W	E	DTW and sampling	inaccessible	inaccessible	inaccessible	inaccessible	Proceed when accessible
IR06MW60A	B	DTW and sampling	N/A – well not in compliance program	N/A – well not in compliance program	inaccessible	inaccessible, affected sampling only	Proceed when accessible
IR07MW19A	B	DTW and sampling	none	none	inaccessible	inaccessible	Proceed when accessible
IR07MW93A	B	DTW	inaccessible	inaccessible	inaccessible	inaccessible	Proceed when accessible
IR07MW94A	B	DTW	inaccessible	inaccessible	inaccessible	inaccessible	Proceed when accessible

Table 4-13. SAP deviation tracking for wells not sampled and not measured.

Well ID	Parcel	SAP Requirement Affected	4Q2006 Reason for Deviation	1Q2007 Reason for Deviation	2Q2007 Reason for Deviation	3Q2007 Reason for Deviation	Corrective Action
IR10MW28A	B	sampling	insufficient water	insufficient water	insufficient water	insufficient water	Remove from program
IR11MW25A	E	DTW and sampling	physical condition	physical condition	physical condition	physical condition	Remove from program
IR12MW11A	E-2	DTW	none	inaccessible	inaccessible	inaccessible	Remove from program
IR12MW17A	E	DTW and sampling	inaccessible, affected sampling only	inaccessible and physical condition	inaccessible and physical condition	inaccessible and physical condition	Remove from program
IR18MW100B	B	DTW	inaccessible	inaccessible	inaccessible	inaccessible	Proceed when accessible
IR18MW101B	B	DTW	inaccessible	inaccessible	inaccessible	inaccessible	Proceed when accessible
IR25MW60A1	C	DTW and sampling	inaccessible	inaccessible	physical condition, affected sampling only	physical condition, affected sampling only	Remove from program
IR28MW933F	C	DTW	Inaccessible and physical condition	physical condition	physical condition	physical condition	Remove from program
IR28MW934F	C	DTW	inaccessible and physical condition	physical condition	physical condition	physical condition	Remove from program
IR36MW125A	E	sampling	insufficient water	insufficient water	insufficient water	insufficient water	Remove from program
IR46MW39A	B	DTW	none	inaccessible	inaccessible	inaccessible	Proceed when accessible

Notes:

Temporary deviations such as standing water, vehicles covering wells, and safety hazards are not tracked in this table.
"Physical condition" means well is obstructed or damaged such that SAP-required sampling and/or water level measurement cannot be conducted.
DTW = Depth to Water

Figures

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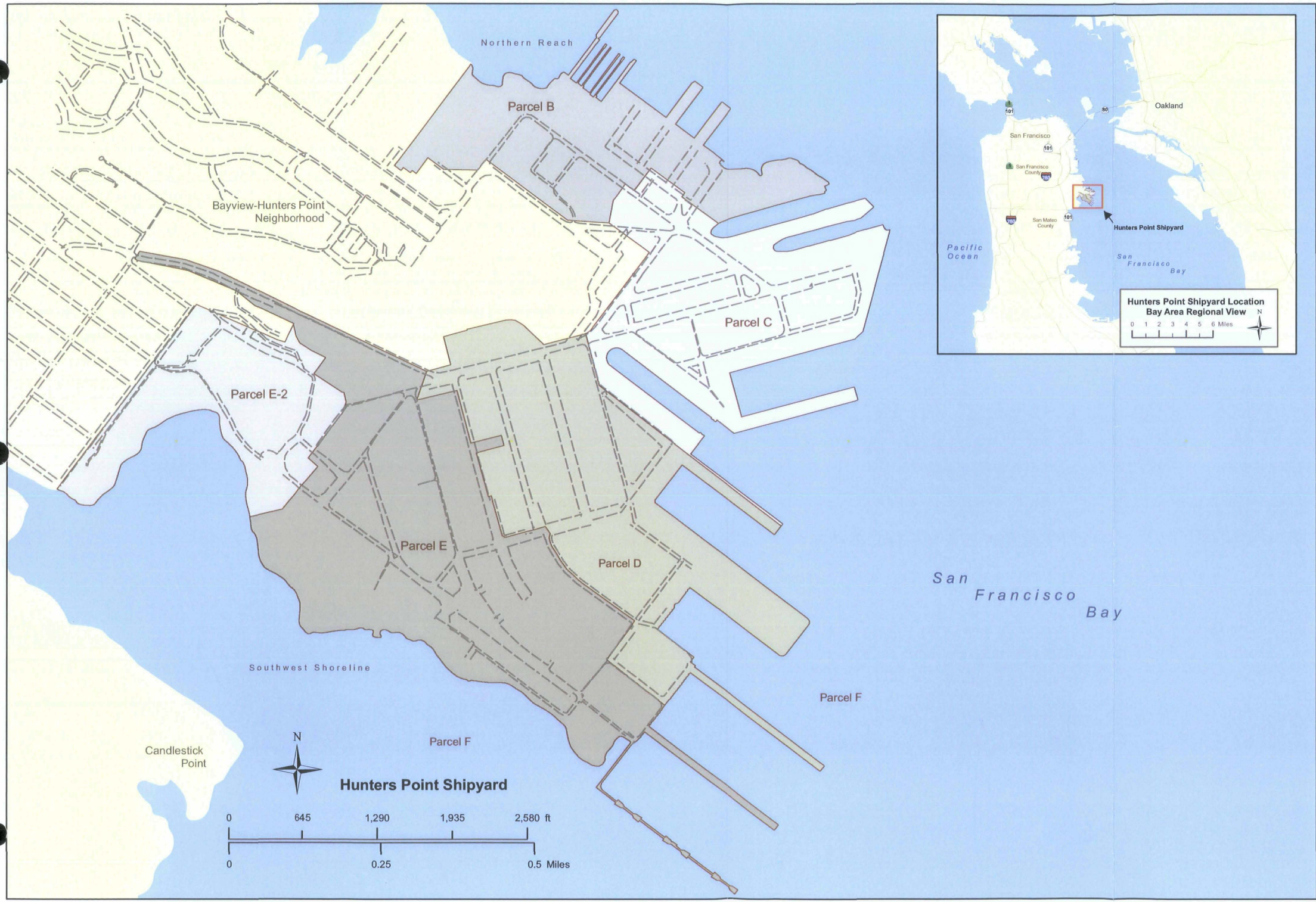

FIGURE 1 - 1

Geographic Setting

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NAVFAC Naval Facilities Engineering Command

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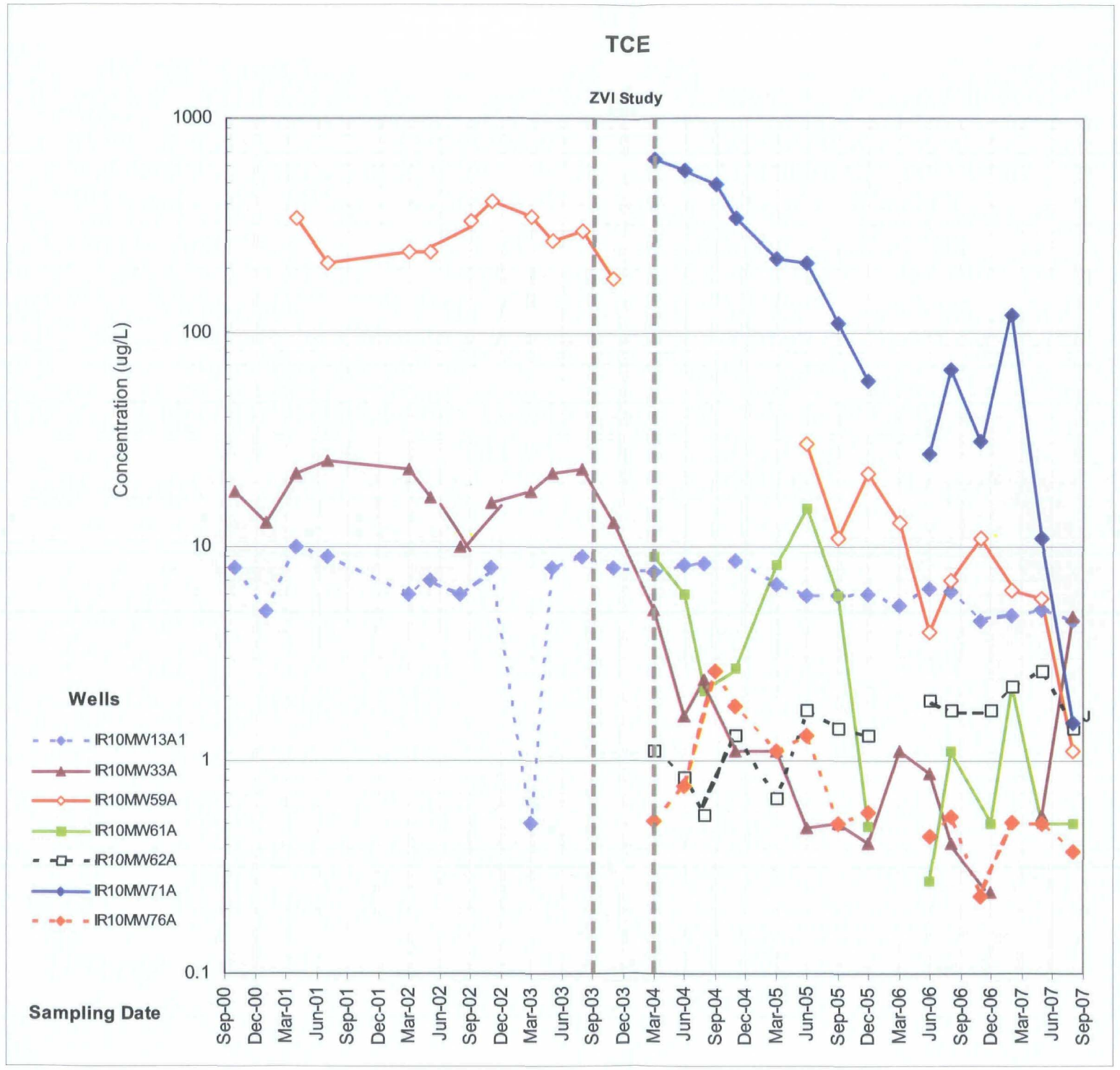
U.S. Navy, Southwest Division, NAVFAC, San Diego, California

S:\Lovelady_CE2 Corporation\ - Print: 12/2007

I:\PROJECTS\HPS\HPS_Reports\HPS_Groundwater_Monitoring\Q2_Q3_2007\CDE\Figures\FIGURE1_12Q2007v1.mxd



Note:
Practical quantitation limit 0.5 ug/L.
Estimated values greater than 0.5 ug/L shown with "J" qualifier.
Well IR10MW28A was removed from the sampling program.
IR10MW59A was not sampled in 1Q04, 2Q04, 3Q04, 4Q04, 1Q05
Wells IR10MW61A, IR10MW62A, IR10MW71A, IR10MW76A not sampled 1Q06

FIGURE 4-1

Time-series plot of TCE concentrations in groundwater at selected IR-10 wells

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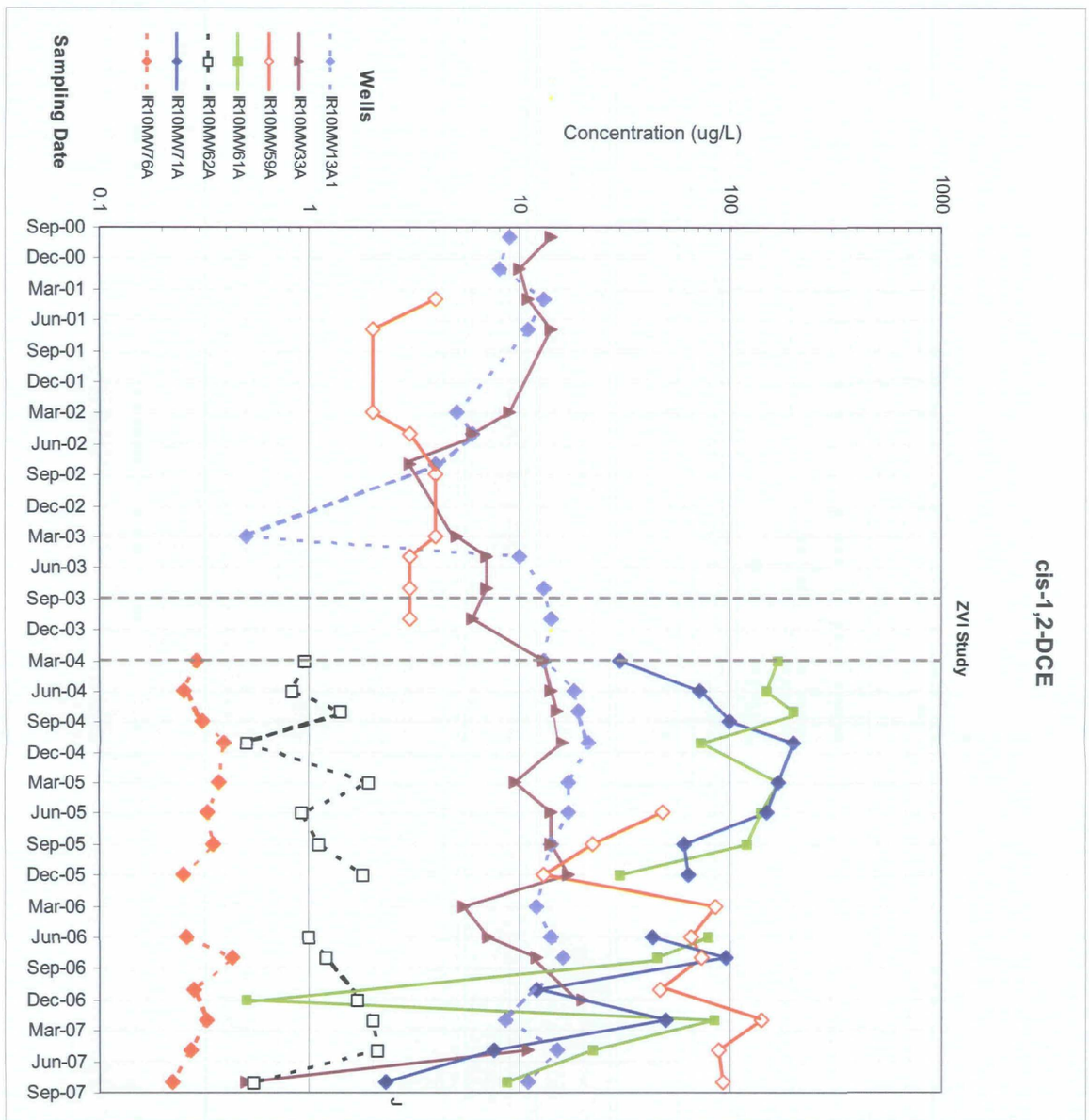
Drawn by: N. Cook 9/20/2007 Project: C5003

FILE:S:\Projects\HPS\C5003\Reports\2007_Q02andQ03



Note:
Practical quantitation limit 0.5 ug/L.
Estimated values greater than 0.5 ug/L shown with "J" qualifier.
Well IR10MW28A was removed from the sampling program.
Well IR10MW59A was not sampled in 1Q04, 2Q04, 3Q04, 4Q04, 1Q05
Wells IR10MW61A, IR10MW62A, IR10MW71A, IR10MW76A not sampled 1Q06

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Time-series plot of cis-1,2-dichloroethene concentrations in groundwater at selected IR-10 wells

FIGURE
4-2

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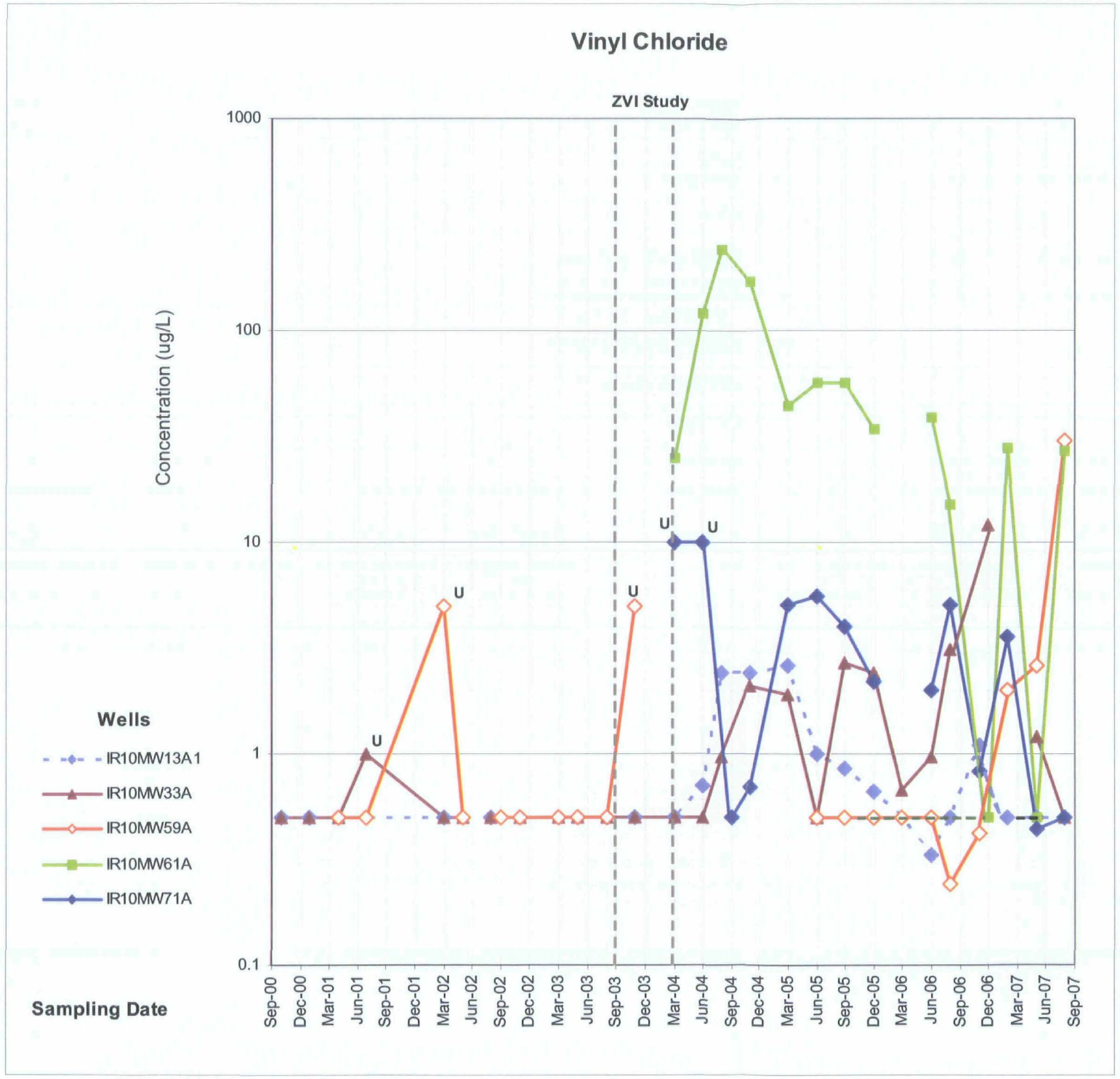

Note:
Practical quantitation limit 0.5 ug/L.
Non-detects greater than 0.5 ug/L shown with "U" qualifier.
Well IR10MW28A was removed from the sampling program.
Well IR10MW59A was not sampled in 1Q04, 2Q04, 3Q04, 4Q04, 1Q05
Wells IR10MW61A, IR10MW71A not sampled 1Q06

FILE:S:\Projects\HPS\C5003\Reports\2007_Q02andQ03

FIGURE **4-3**

Time-series plot of vinyl chloride concentrations in groundwater at selected IR-10 wells

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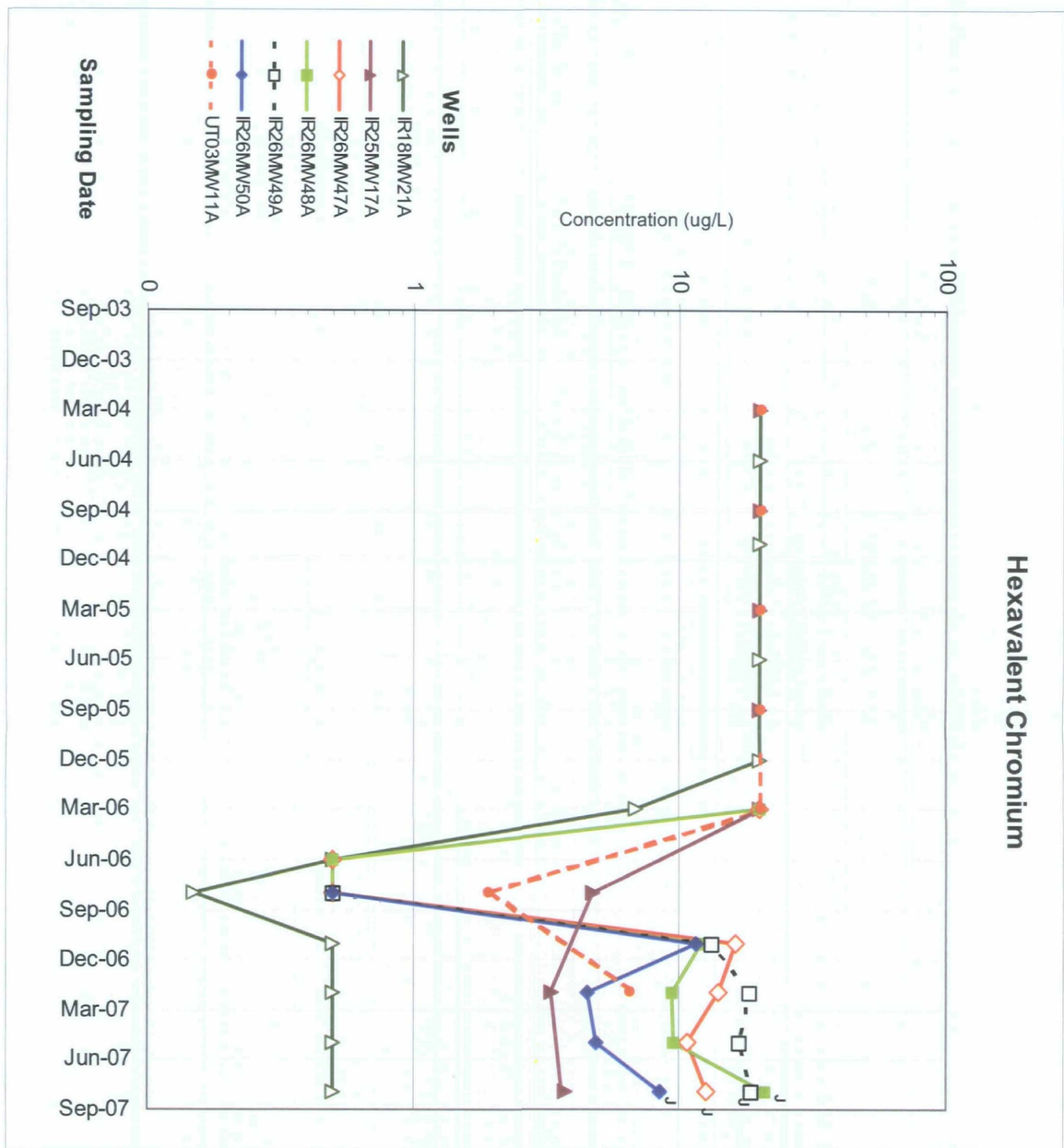
Drawn by: N. Cook 9/21/2007 Project: C5003

FILE:S:\Projects\HPS\C5003\Reports\2007_Q02and03



Note:
Practical quantitation limit for method 7196A is 20 ug/L (2001-6/2006); for method 7199 is 0.5 ug/L (6/2006 forward)
Estimated values greater than 0.5 ug/L shown with "J" qualifier.
Well IR10MW12A decommissioned July 2006

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Time-series plot of hexavalent chromium concentrations in groundwater at selected Parcel B wells

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(April-September 2007)

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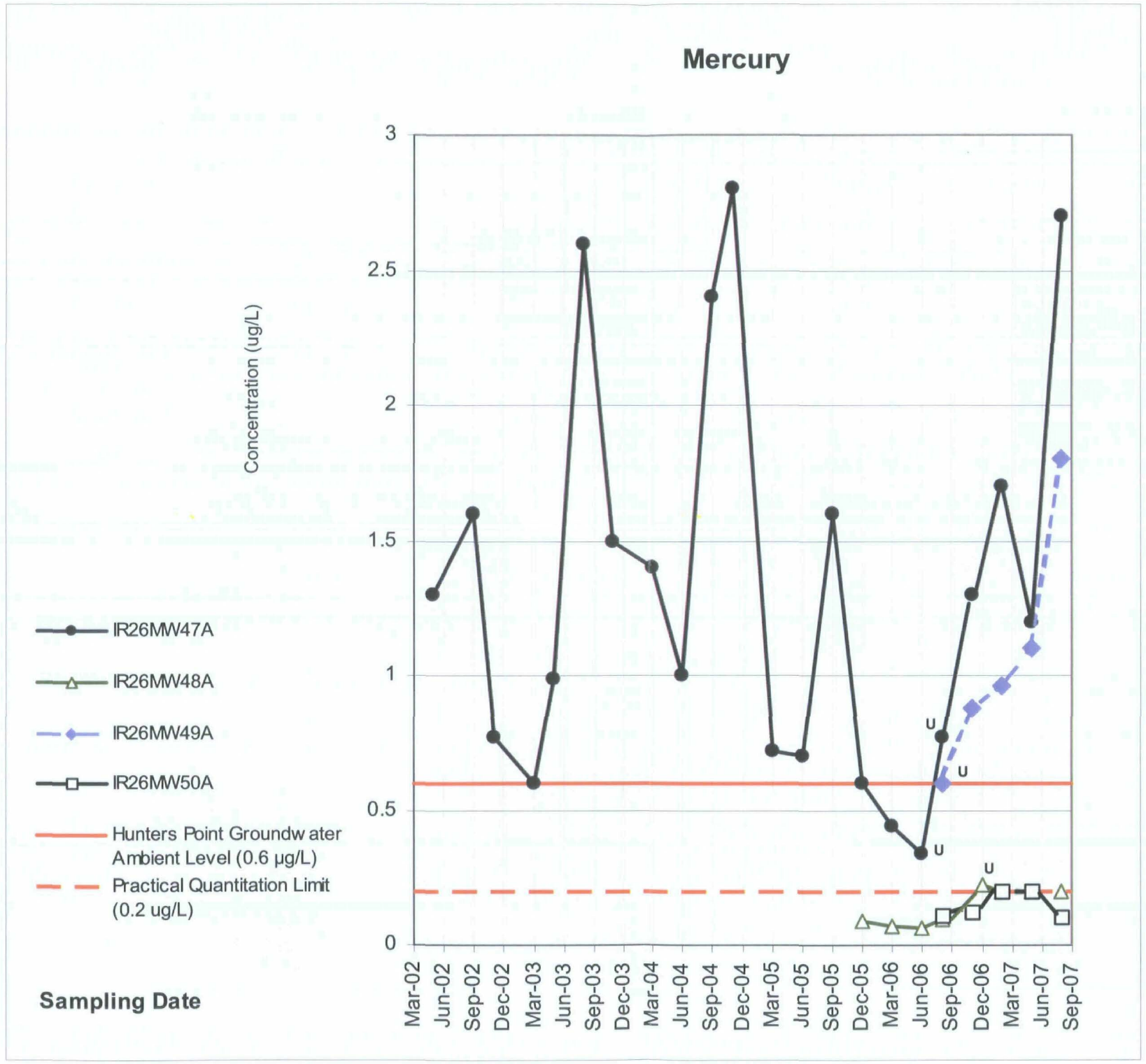
FIGURE
4-4



Note:
Non-detects greater than 0.2 ug/L shown with "U" qualifier.
Wells IR26MW49A and IR26MW50A installed July 2006.

Time-series plot of mercury concentrations in groundwater at selected Parcel B wells

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FIGURE **4-5**

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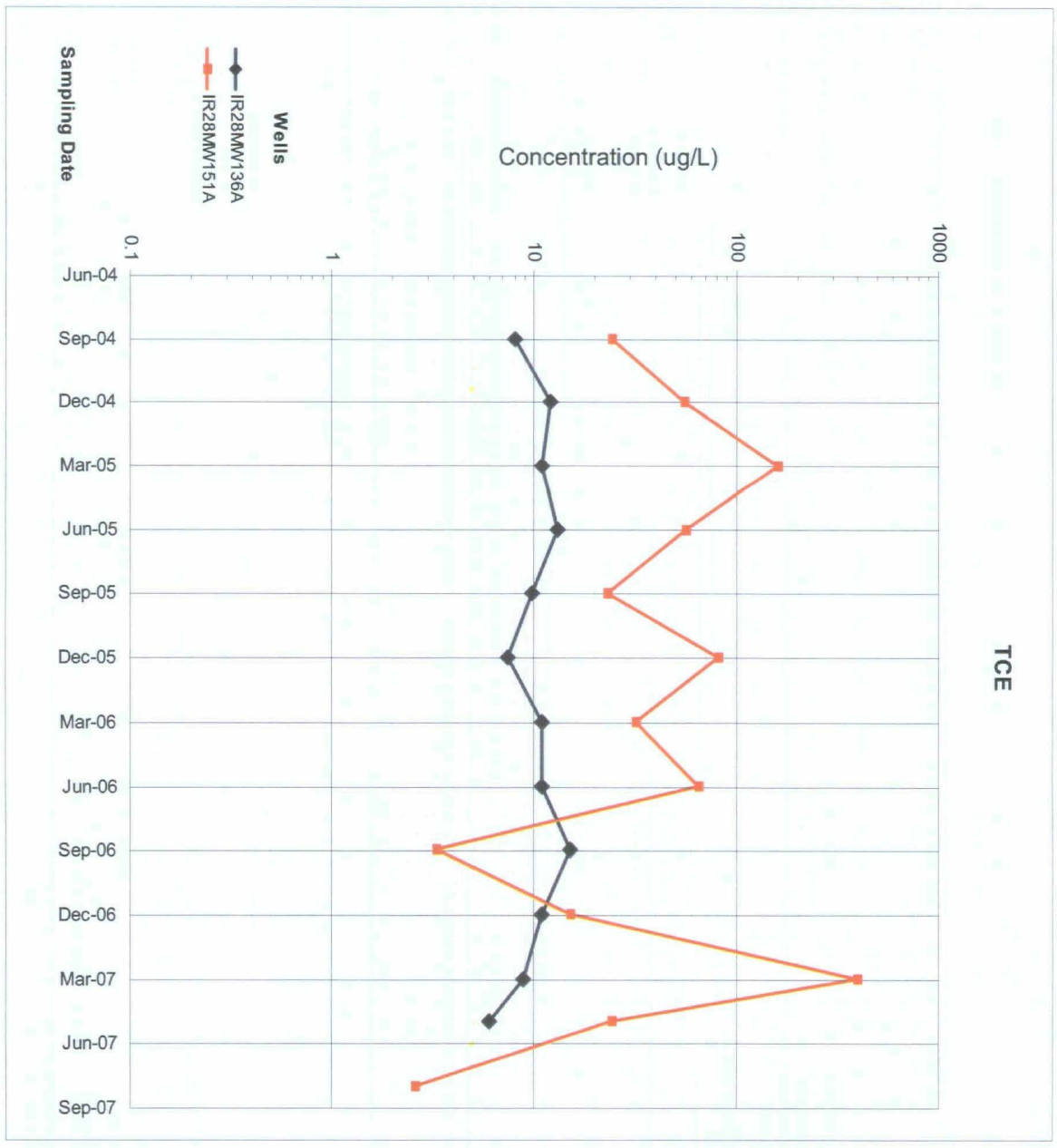

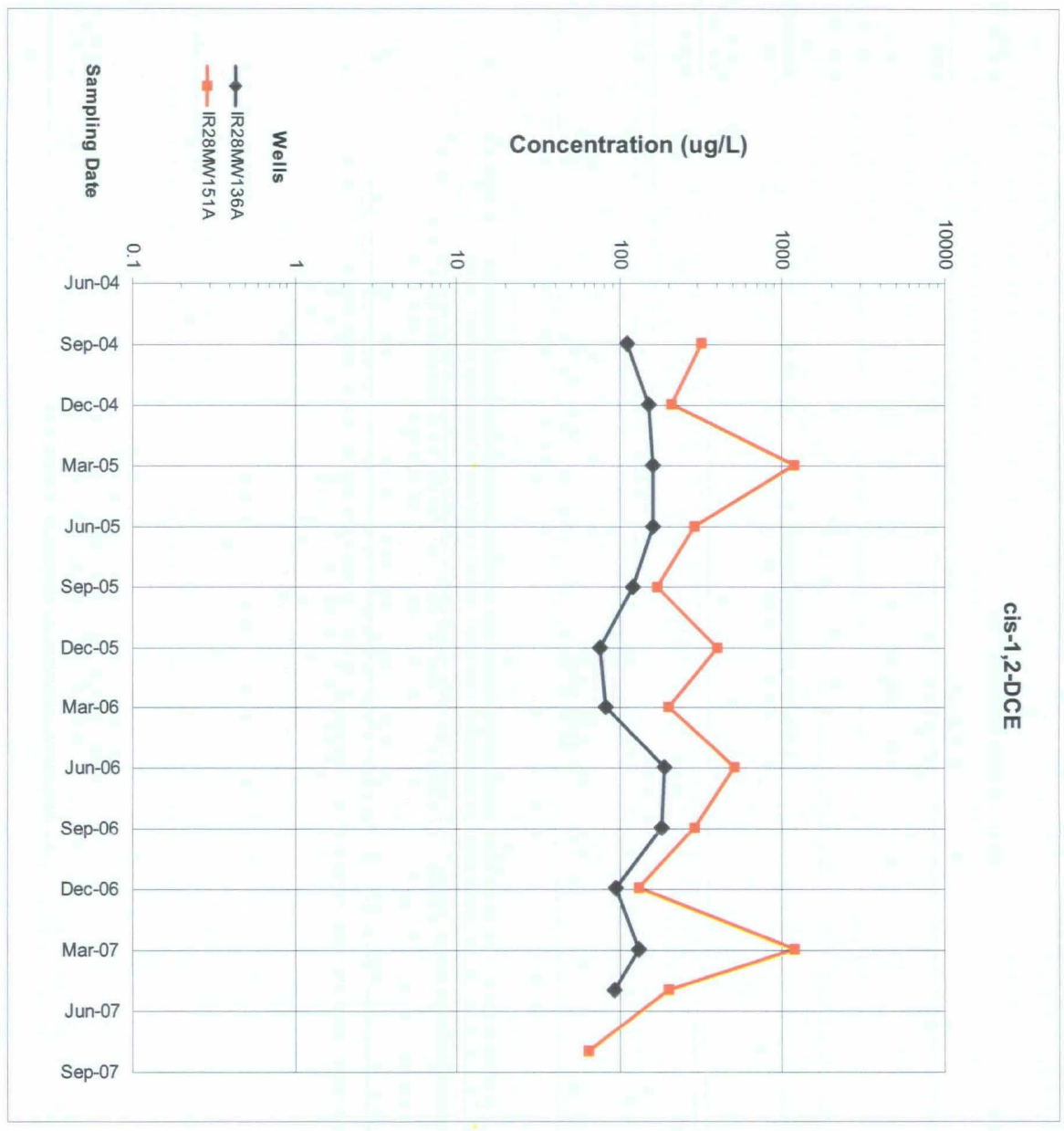

Note: Practical quantitation limit 0.5 ug/L.

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Time-series plots of TCE and cis-1,2-DCE in groundwater at RU-C1

FIGURE

4-6

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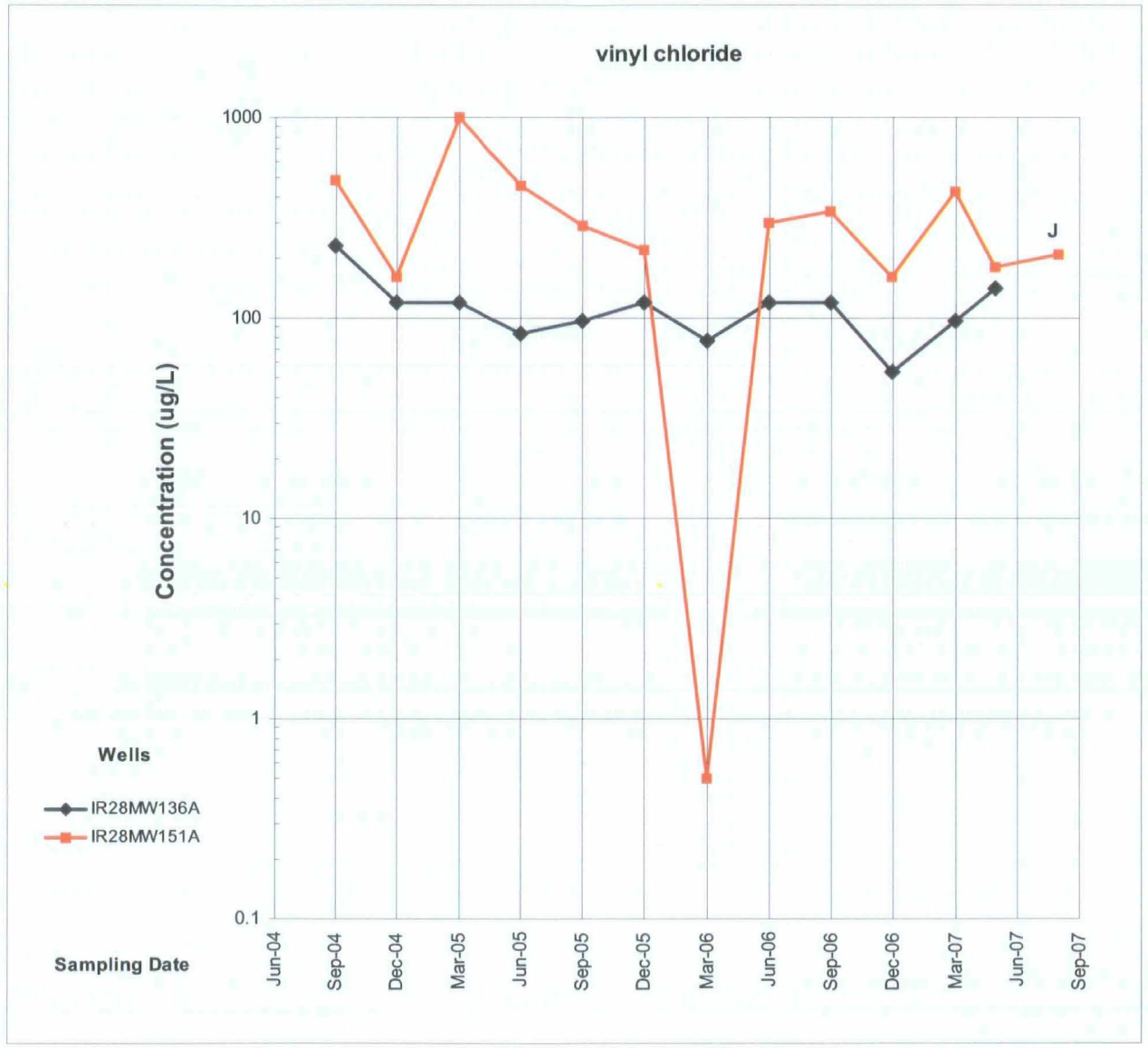

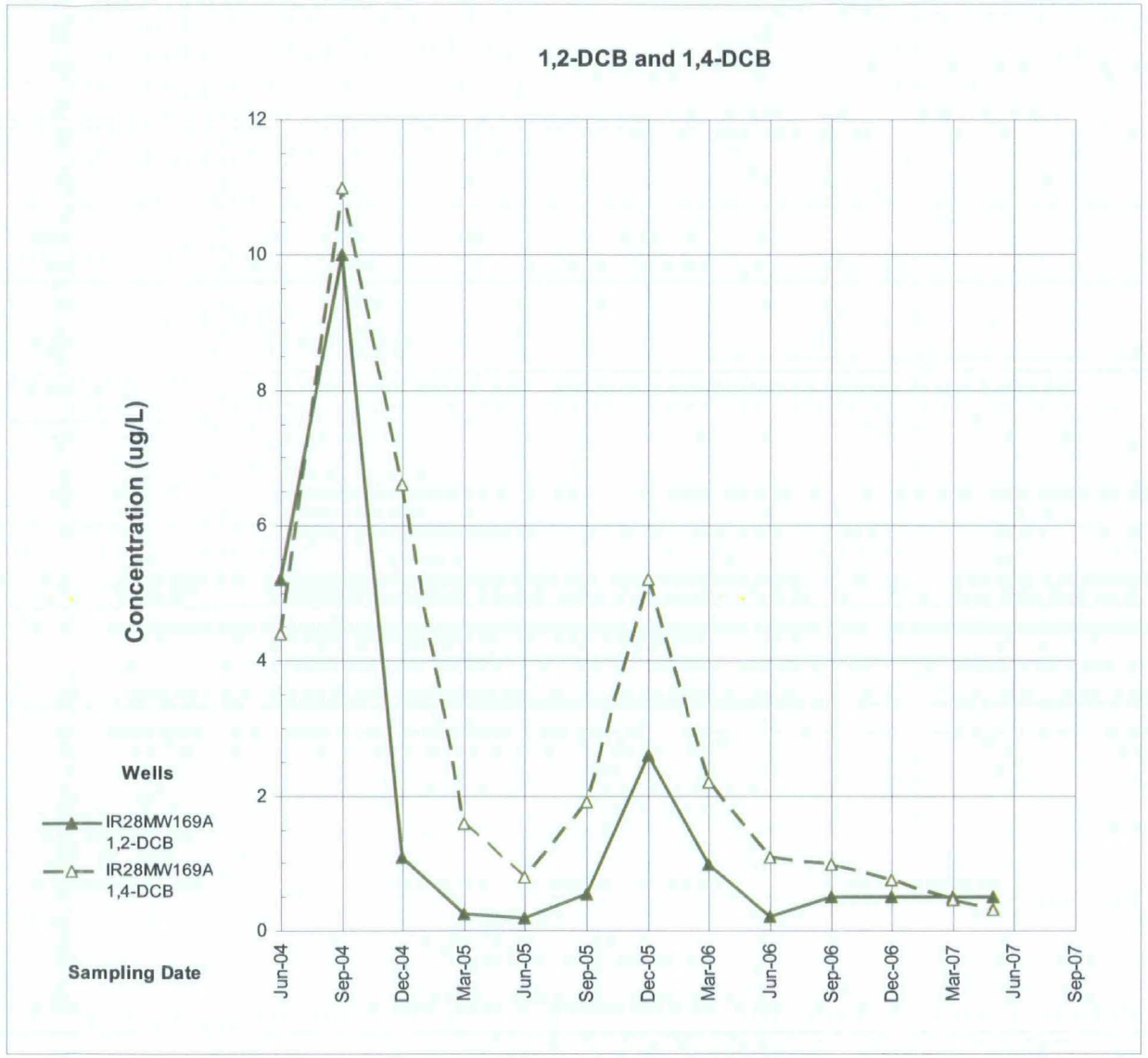

Note: Practical quantitation limit 0.5 ug/L.
Estimated values above 0.5 ug/L shown with "J" qualifier.

FIGURE 4-7

Time-series plots of vinyl chloride, 1,2-DCB and I,4-DCB in groundwater at RU-C1

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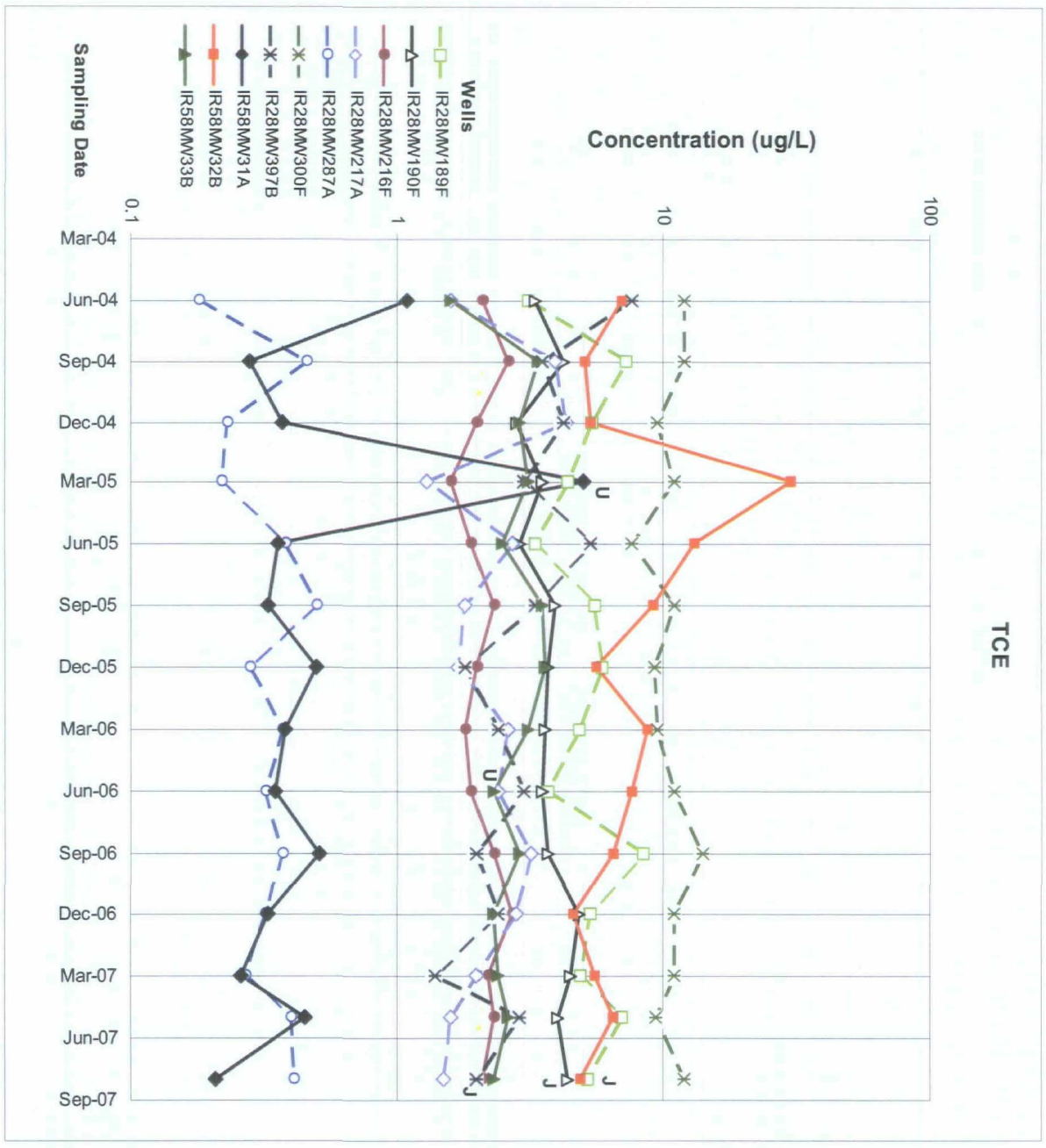
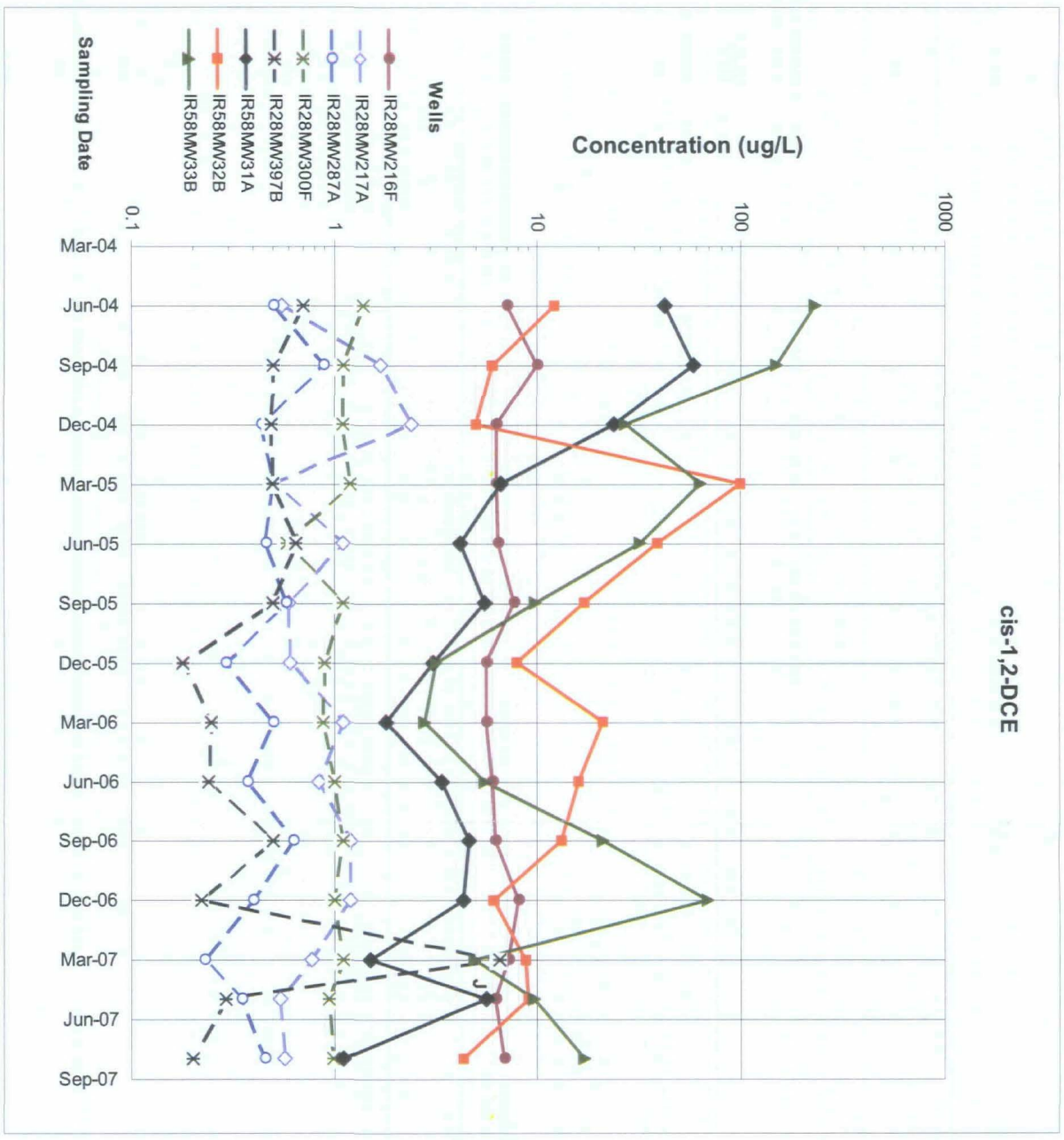
Drawn by: N. Cook 9/24/2007 Project: 5003

FILE:S:\Projects\HPS\C5003\Reports\2007_Q02andQ03





Note: Practical quantitation limit 0.5 ug/L.
Non-detects greater than 0.5 ug/L shown with "U" qualifier.
Estimated values greater than 0.5 ug/L shown with "J" qualifier

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Time-series plots of TCE and cis-1,2-DCE in groundwater at RU-C2

FIGURE
4-8

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Hunters Point Shipyard, San Francisco, California
U.S. Navy, Southwest Division, NAVFAC, San Diego, California

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(April-September 2007)

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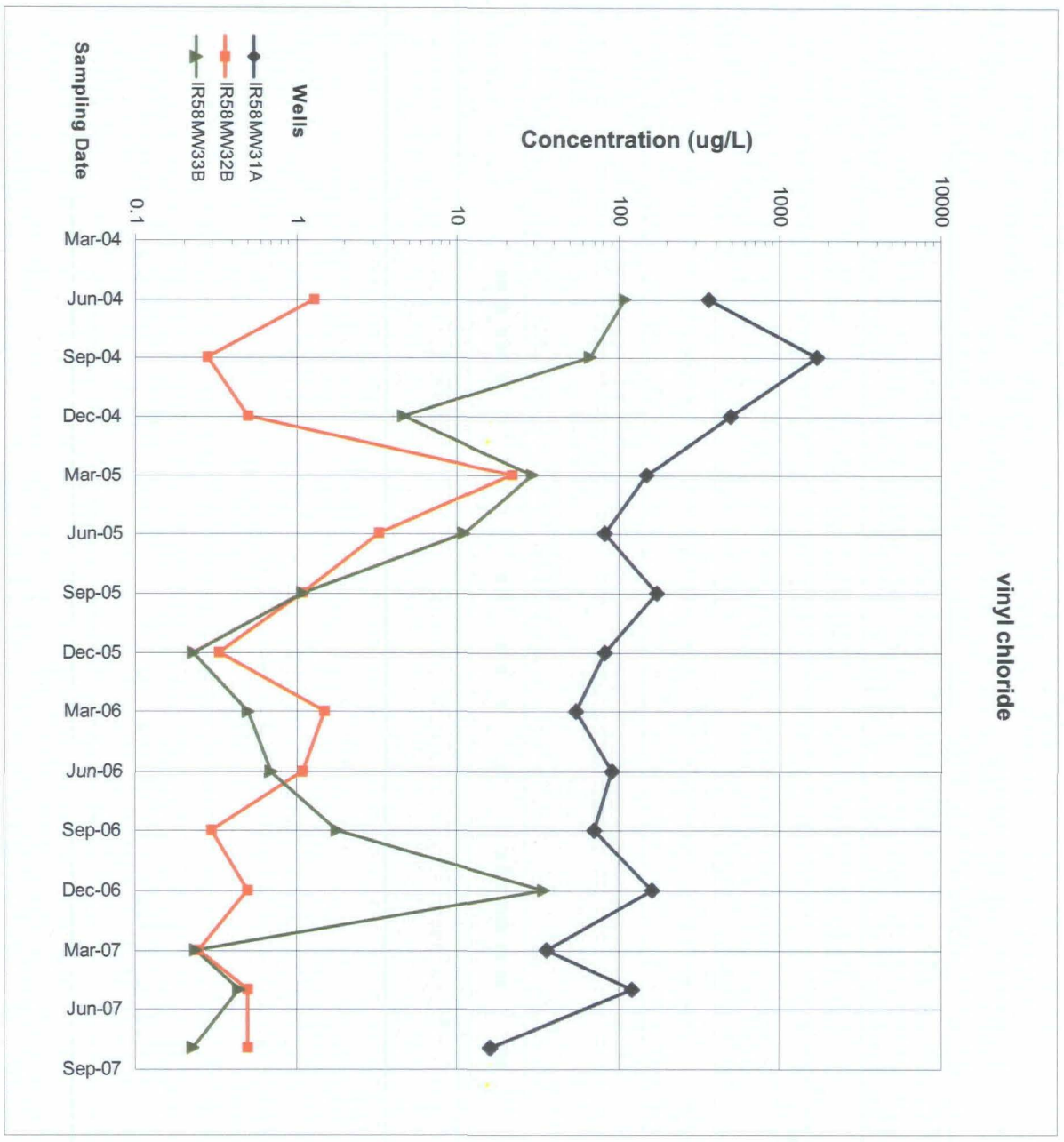
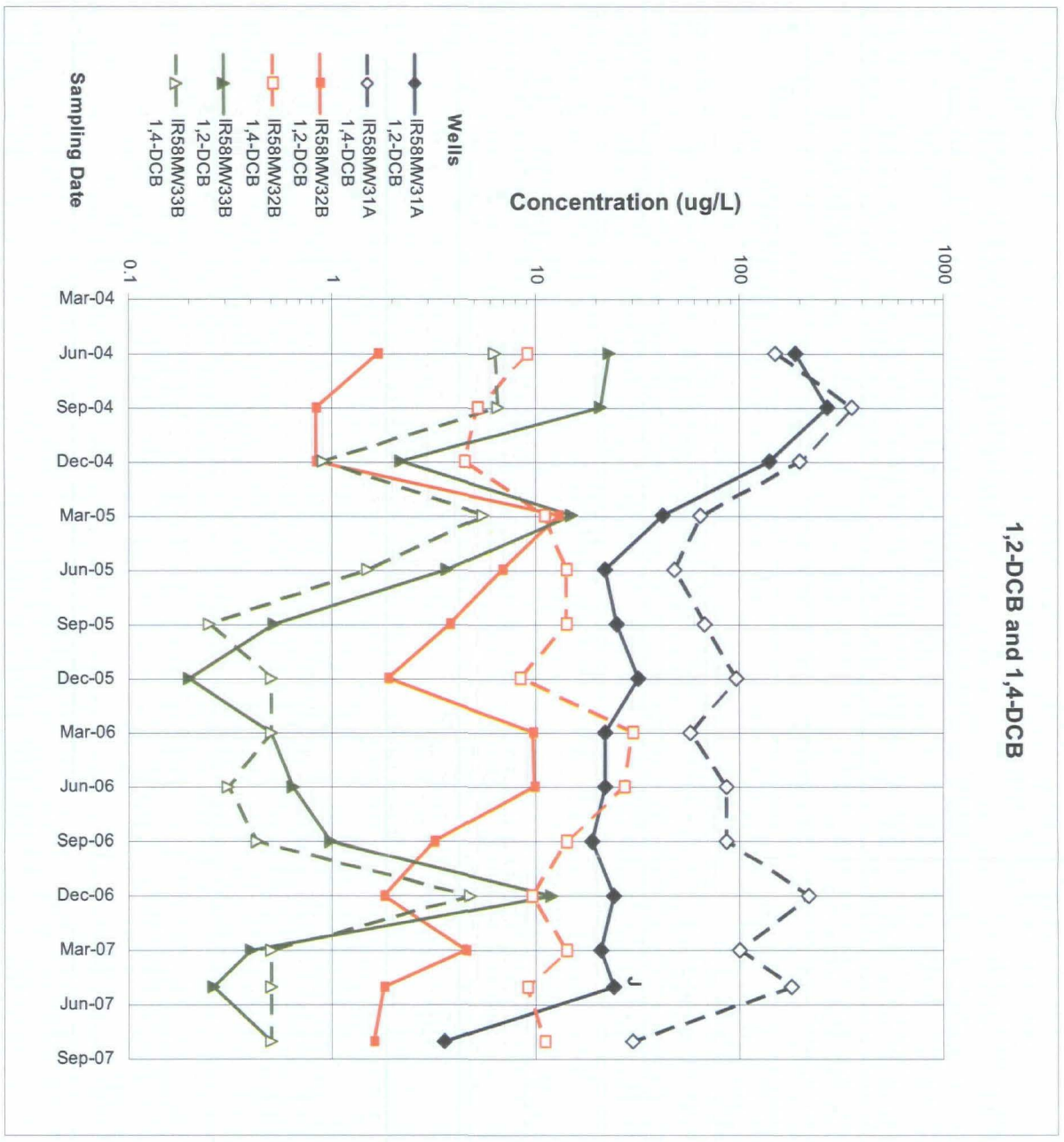
Drawn by: N. Cook 9/24/2007 Project: 5003

FILE:S:\Projects\HPSY\C5003\Reports\2007_Q02andQ03





Note: Practical quantitation limit 0.5 ug/L.
Estimated values greater than 0.5 ug/L shown with "J" qualifier.

FILE:S:\Projects\HPS\C5003\Reports\2007_Q02andQ03

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Drawn by: N. Cook 9/24/2007 Project: 5003

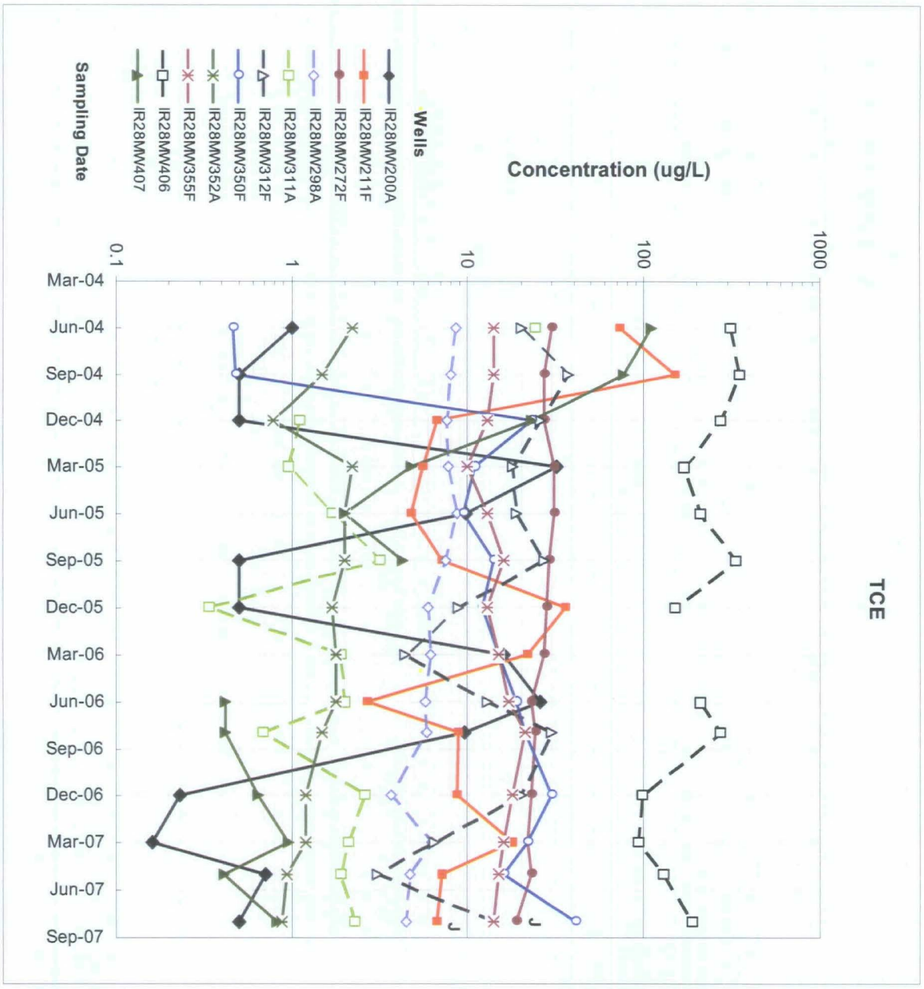
Time-series plots of vinyl chloride, 1,2-DCB and l,4-DCB in groundwater at RU-C2

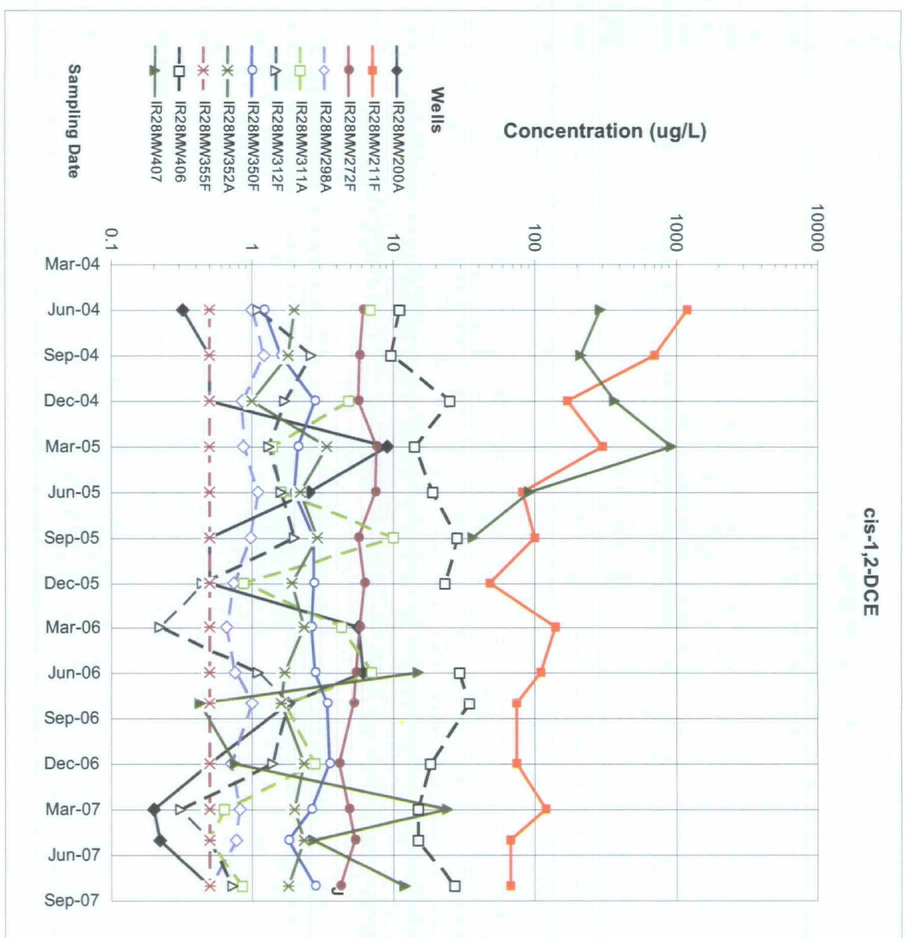
Semi-Annual Groundwater Monitoring Report
(April-September 2007)

November 2007 CEKA-3001-0000-0004

FIGURE

4-9





Note: Practical quantitation limit 0.5 ug/L.
Estimated values above 0.5 ug/L shown with "J" qualifier.
Well IR28MW406A was not sampled in 1Q06.
Well IR28MW407A was not sampled in 4Q05 or 1Q06.

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Time-series plots of TCE and cis-1,2-DCE in groundwater at RU-C4

FIGURE

4-10

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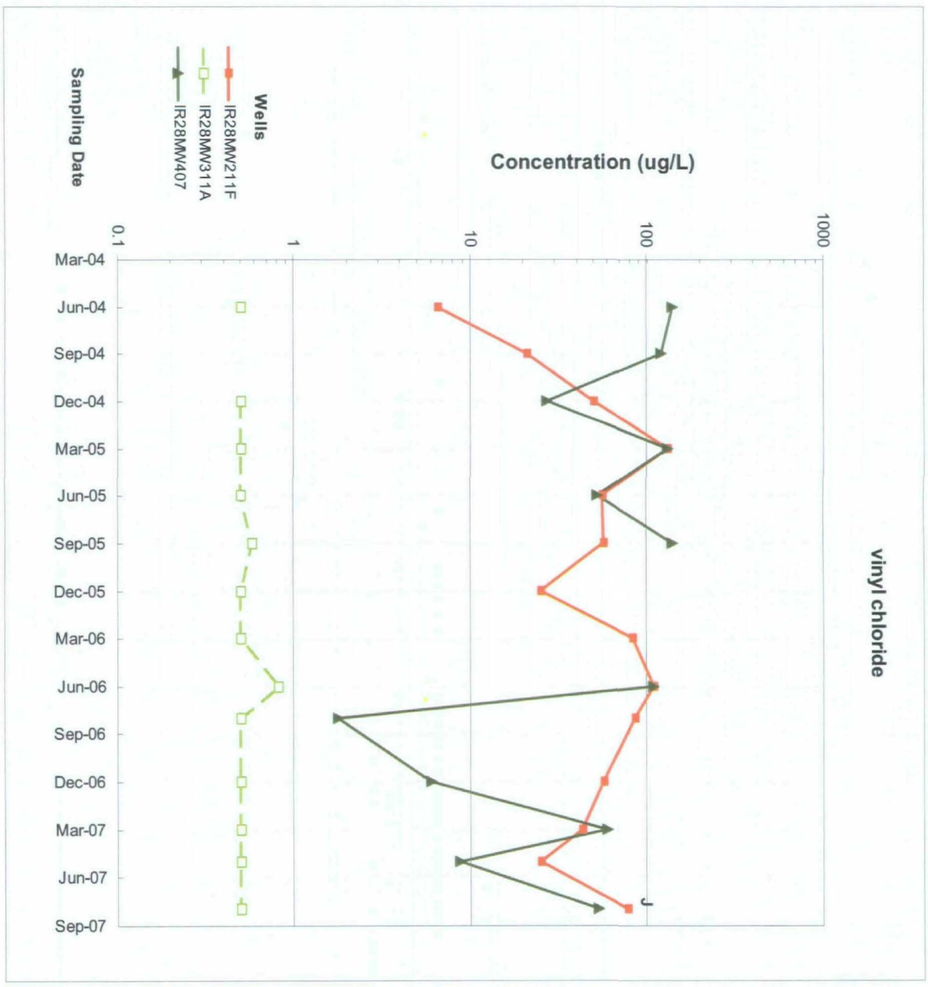

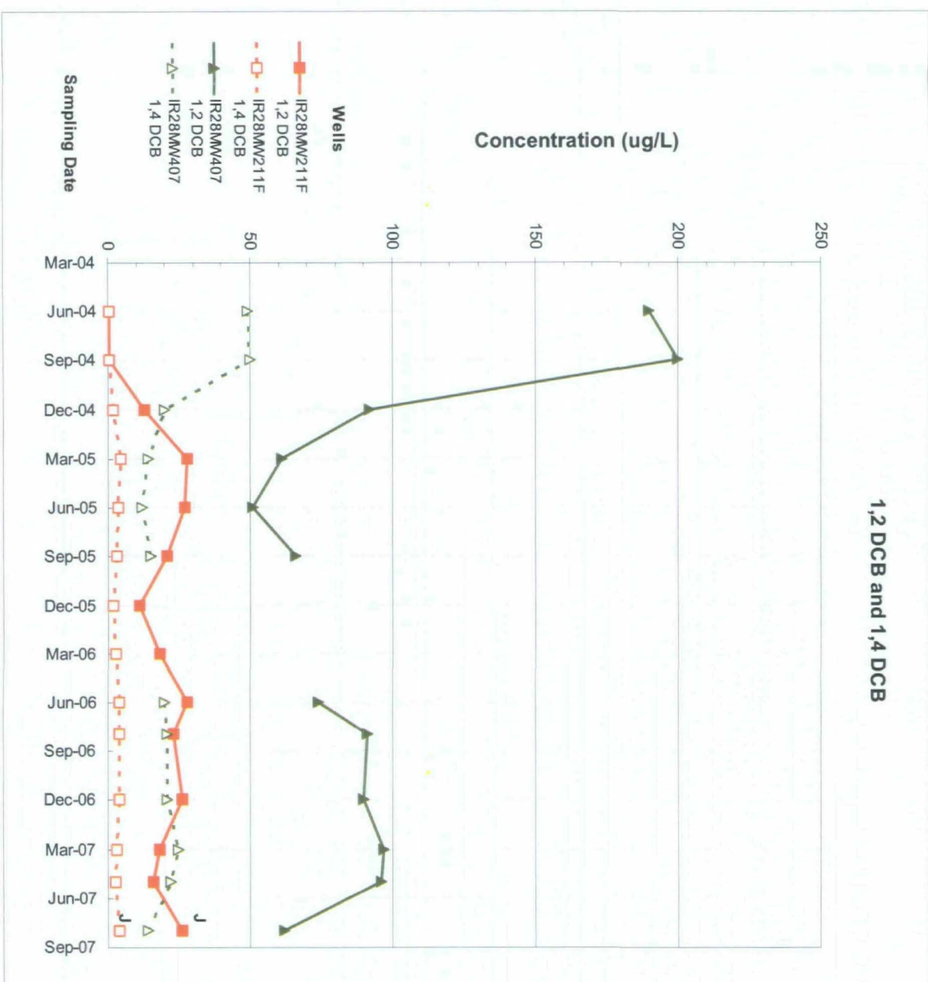

Note: Practical quantitation limit 0.5 ug/L.
Estimated values above 0.5 ug/L shown with "J" qualifier.
Well IR28MW407A was not sampled in 4Q05 or 1Q06.

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Time-series plots of vinyl chloride, 1,2-DCB and 1,4-DCB in groundwater at RU-C4

FIGURE

4-11

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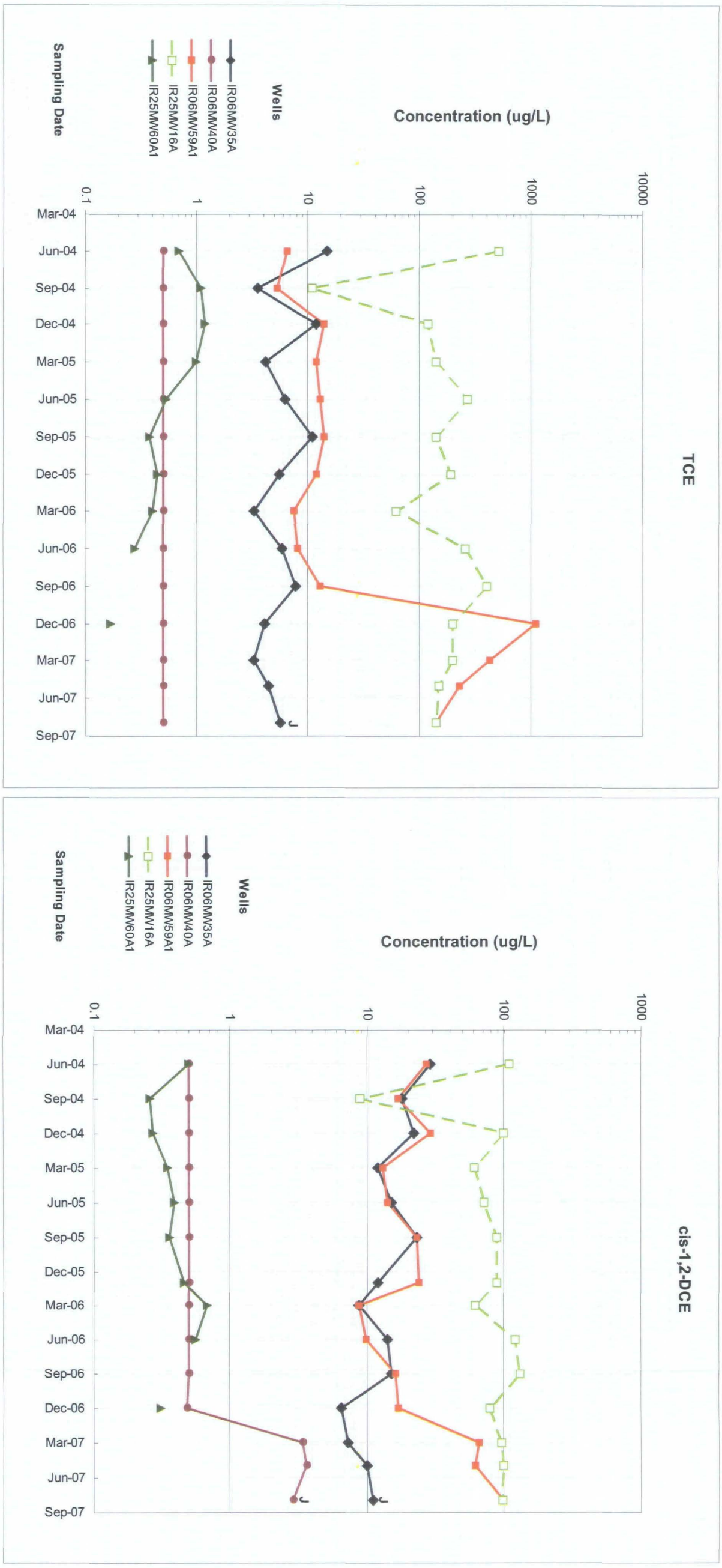

Note:
Practical quantitation limit 0.5 ug/L.
Estimated values above 0.5 ug/L shown with "J" qualifier.
Well IR25MW60A1 not sampled in 3Q06, 01Q07, 2Q07, or 3Q07.

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Time-series plots of TCE and cis-1,2-DCE in groundwater at RU-C5

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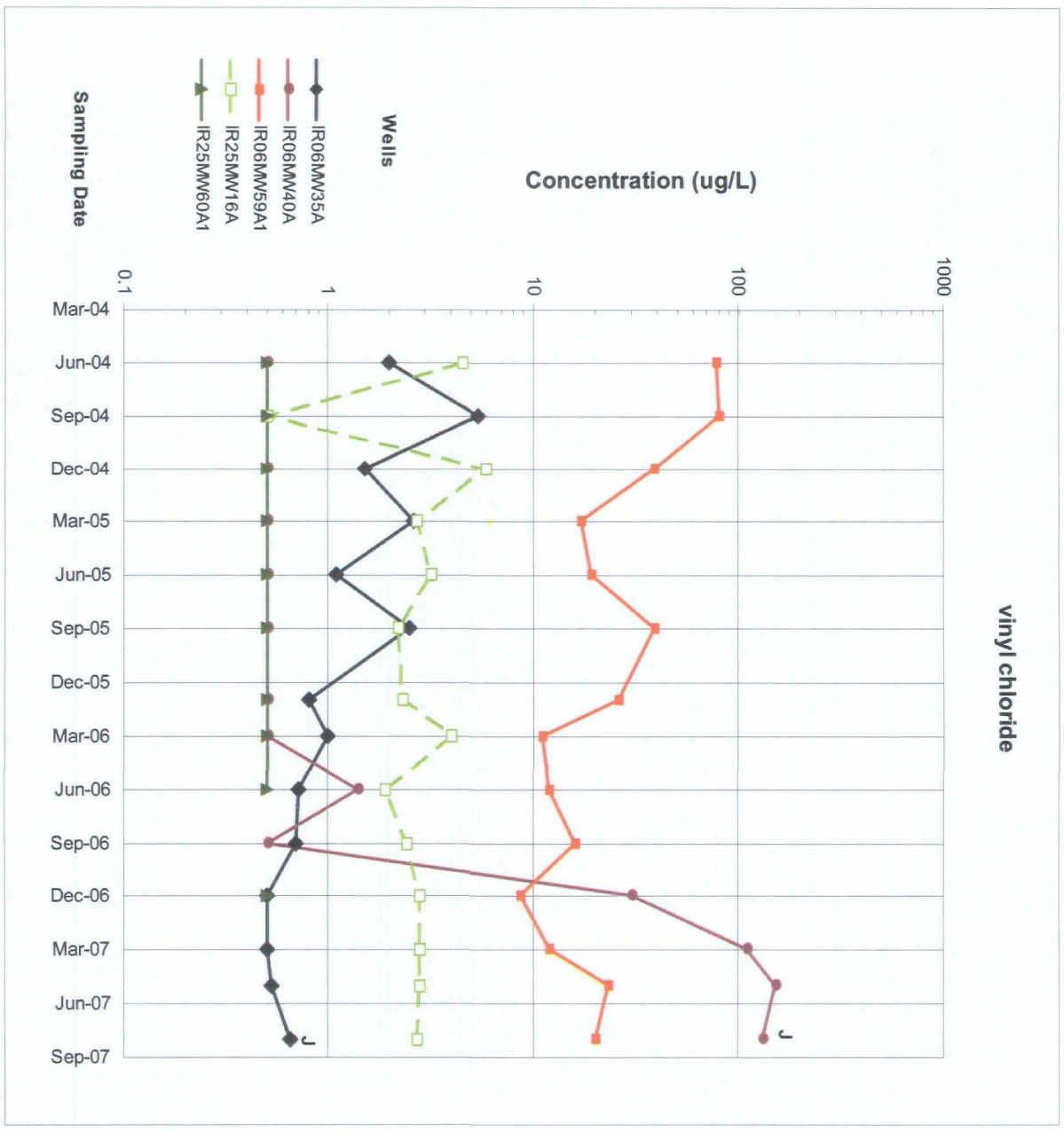
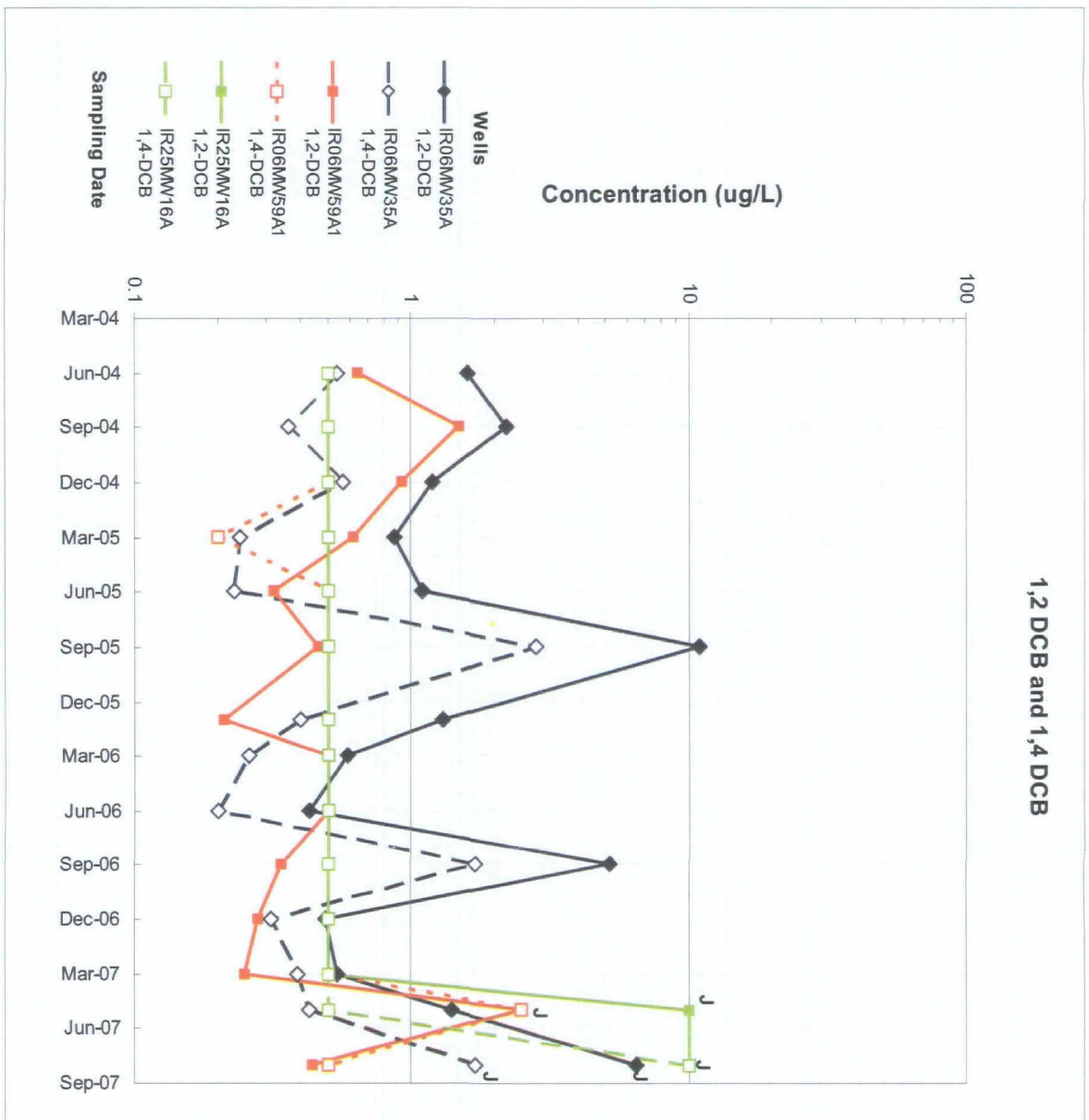
FIGURE

4-12





Note:
Practical quantitation limit 0.5 ug/L.
Estimated values above 0.5 ug/L shown with "J" qualifier.
Well IR25MW60A1 was not sampled in 3Q06, 1Q07, 2Q07, or 3Q07.

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Time-series plots of vinyl chloride, 1,2-DCB and 1,4-DCB in groundwater at RU-C5

FIGURE

4-13

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FILE:S:\Projects\HPSC5003\Reports\2007_Q02andQ03

Northern Reach

Parcel B

Bayview - Hunters Point Neighborhood

IR25MW902B
(0.00)
(0.00)

IR25MW54A
(0.00)
(0.00)

IR25MW11A
(0.21)
(0.00)

Parcel C

Parcel E-2

Parcel E

IR12MW21A
(0.01)
(0.00)

PA36MW08A
(0.00)
(0.00)

IR39MW21A
(0.00)
(0.00)

Parcel D

Parcel F

IR02MW146A
(3.31)
(0.00)

IR03MWO-1
(0.00)
(0.00)

IR03MWO-3
(5.65)
(0.00)

IR03MW225A
(5.10)
(0.00)

IR03MW371A
(0.00)
(0.00)

IR03MW218A2
(0.00)
(0.00)

IR03MW218A1
(0.00)
(0.00)

IR03MW226A
(0.27)
(0.00)

IR02MW173A
(2.30)
(0.00)

IR03MW370A
(4.53)
(0.00)

IR03MWO-2
(1.50)
(0.00)

IR03MW369A
(0.05)
(0.00)

Southwest Shoreline

San Francisco Bay

Legend

- Monitoring well (LNAPL thinckness in feet) (DNAPL thinckness in feet)
- Sheet pile wall
- roads
- buildings
- Parcel B
- Parcel C
- Parcel D
- Parcel E
- Parcel E-2
- Non - Navy property
- San Francisco Bay

Abbreviations:
LNAPL: light nonaqueous phase liquid
DNAPL: dense nonaqueous phase liquid

N
W E
S

0 50 100 ft
Inset scale

0 250 500 750 1,000 1,250 ft
Basewide scale

FIGURE **4 -14**

Annual NAPL measurements August 2007

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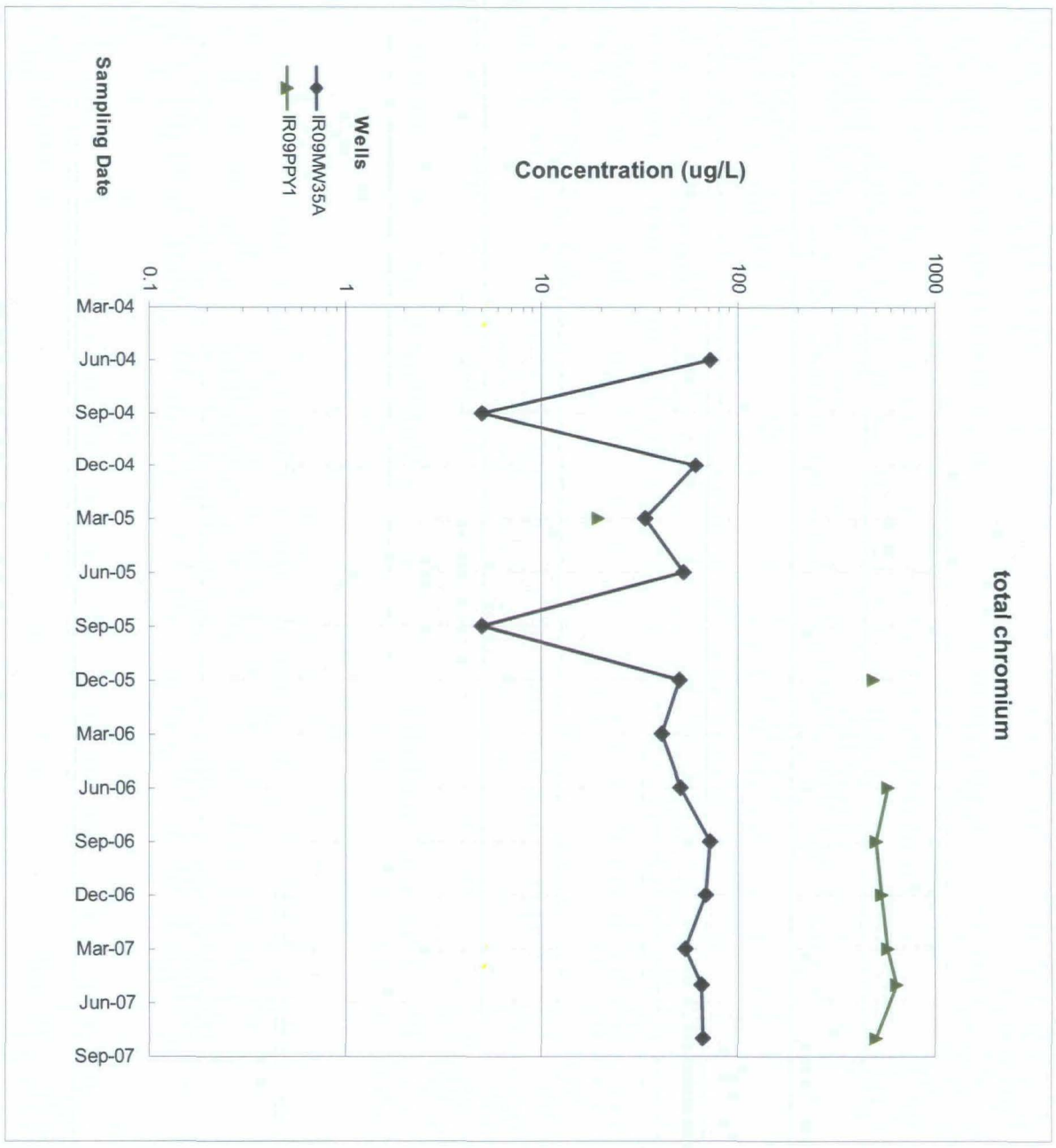
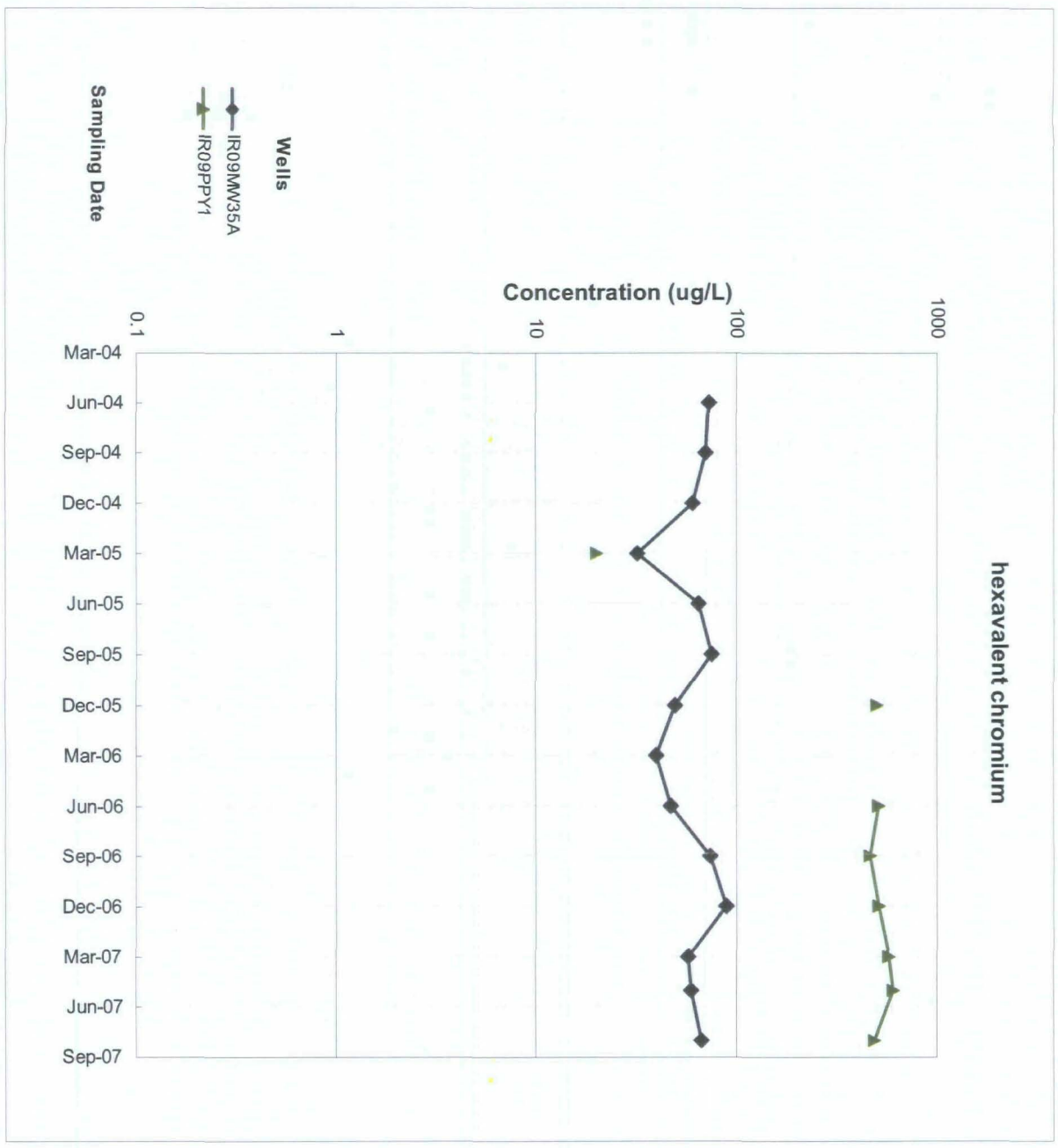


Note:
Practical quantitation limit 5 ug/L.
Well IR09PPY1 was not sampled in 2Q04, 3Q04, 4Q04, 2Q05, 3Q05, 1Q06.



Note:
Practical quantitation limit 0.5 ug/L.

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Time-series plots of total chromium and hexavalent chromium in groundwater at IR-09

FIGURE

4-15

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Plates

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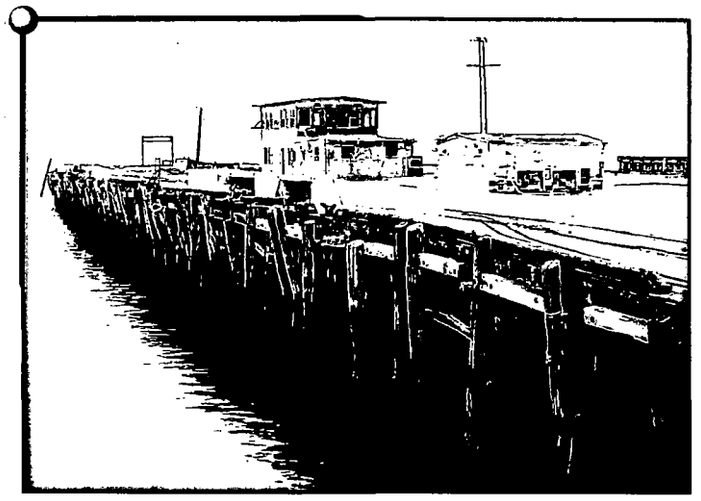

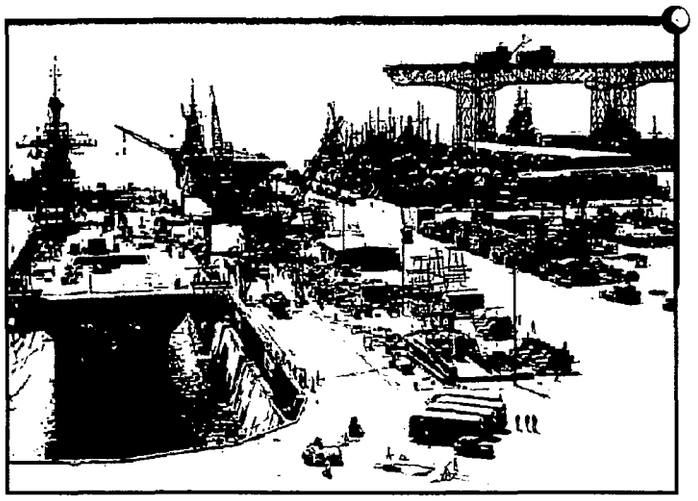

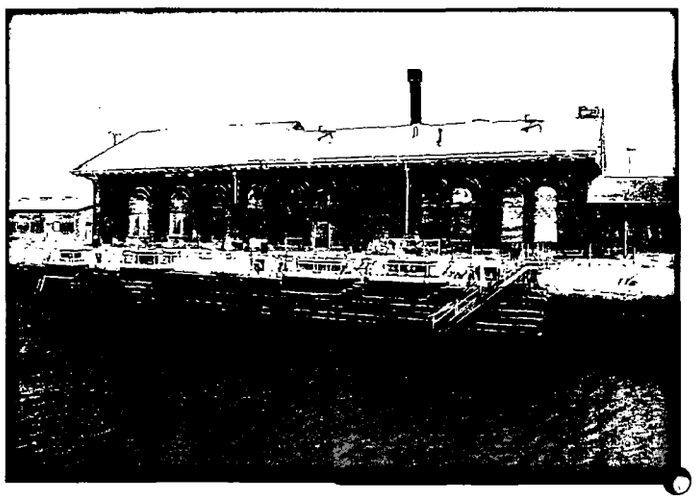

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